THE LANCET.

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CONTENTS.

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THE CROONIAN LECTURES on the Pathology of Immunity, as Illustrated by the Behaviour of Fluid Exudates from the Tissues and Various Body Cavities, in Acute and Chronic Bacterial Infections, more Especially with Regard to the Problem of Aggressins. Delivered before the Royal College of Physicians of London by LEONARD S. DUDGEON, F.R.C.P. Lond., Bacteriologist to, and Joint Lecturer on Pathology at, St. Thomas's Hospital; Director of the Hospital Laboratories.—Lecture IV 1

ORIGINAL ARTICLES.

The Vascular Lesion in Some Cases of Middle Meningeal Hæmorrhage. By FREDERIC WOOD JONES, M.B., B.S., D.Sc. Lond., Senior Demonstrator of Anatomy, St. Thomas's Hospital Medical School.—*(Illustrated)* 7

Note on a Case of Angina Abdominis. By WALTER K. HUNTER, M.D., D.Sc. Glasg., Muirhead Professor of Medicine, University of Glasgow; Physician, Glasgow Royal Infirmary 12

The Ophthalmology of General Practice. By MALCOLM L. HEPBURN, M.D., B.S. Lond., F.R.C.S.Eng., Assistant Surgeon, Royal London (Moorfields) Ophthalmic Hospital; Ophthalmic Surgeon to Outpatients, Hampstead General Hospital; Chief Assistant, Ophthalmic Department, St. Bartholomew's Hospital 13

Observations on the Etiology of Vaccinia and on the Cultivation of the Microbe of Variola. By W. J. SIMPSON, C.M.G., M.D. Aberd., F.R.C.P. Lond., Professor of Hygiene, King's College; Lecturer on Hygiene, London School of Tropical Medicine 20

The Examination of Diphtheria Specimens: A New Technique in Staining with Toluidin Blue. By CONSTANT PONDER, M.D., D.P.H. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Assistant to the County Medical Officer for Kent. (From the Kent County Bacteriological Laboratory, Maidstone) 22

Removal of an Intrathoracic Thyroid Tumour. By C. B. LOCKWOOD, F.R.C.S. Eng., Consulting Surgeon to St. Bartholomew's Hospital; and W. DOUGLAS HARMER, M.C. Cantab., F.R.C.S. Eng., Surgeon to the Throat Department, St. Bartholomew's Hospital 23

A Blood Puzzle Solved. The So-called X Bodies. By ANDREW BALFOUR, M.D., B.Sc. Edin., F.R.C.P. Edin., D.P.H. Camb., Director, Wellcome Tropical Research Laboratories, Gordon College, Khartoum 24

Ultra-violet Light in the Treatment of Alopecia. By J. DELPRATT HARRIS, M.D. Durh., M.R.C.S. Eng., Honorary Medical Officer in Charge of the Electrical Department of the Royal Devon and Exeter Hospital 25

An Unusual Case of Prolonged Fever presenting Acute-Hepatic Changes. By H. GWYNNE LAWRENCE, M.B. Lond. 25

REVIEWS AND NOTICES OF BOOKS.

Pathology, General and Special, for Students of Medicine. By R. Tanner Hewlett, M.D. Lond., F.R.C.P. Lond., D.P.H. R.C.P.S. Third edition 26

Service Memories. By Surgeon-General Sir A. D. Home, V.C., K.C.B. Edited by Brevet-Colonel C. H. Melville, A.M.S. 27

Infectious Diseases and their Preventive Treatment. By E. C. Seaton, M.D. Lond., F.R.C.P. Lond. 27

Pellagra, an American Problem. By George M. Niles, M.D. 28

Vorlesungen über Frauenkrankheiten aus der Praxis für die Praxis. Von Dr. Karl Abel 28

Immunity, Methods of Diagnosis and Therapy and their Practical Application. By Dr. Julius Citron. Translated from the German and edited by A. L. Garbat, M.D. 29

A Synopsis of Surgery. By Ernest W. Hey Groves, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng. Third edition 29

Practical Electro-therapeutics and X Ray Therapy. By J. M. Martin, M.D. 29

A Manual of Practical Bio-Chemistry for the Use of Students during Introductory Courses. By H. Leighton Kesteven, D.Sc. 30

Health to Date. The Modern Doctor with Newer Methods of Cure. As explained by W. T. Fernie, M.D. Durh. 30

Alone in Wes Africa. By Mary Gaunt 30

LEADING ARTICLES.

THE NATIONAL INSURANCE ACT 31

MEDICAL PRACTICE IN INDIA 32

THE PATHOLOGY OF IMMUNITY 33

ANNOTATIONS.

The Difficulties of Medical Treatment 34

Lord Rosebery and Medicine 34

Royal College of Surgeons of England: Important Additions to the Museum 35

The Radio-active Nitrogenous Thermal Springs at Buxton 35

The Royal Society of Medicine 35

Dreams and their Significance 36

The Regulations Governing the Training of Midwives 36

Infantile Paralysis in Massachusetts 36

A Hundred Years of Gas-making 37

Appendicitis in Typhoid Fever 37

An Atmospheric Pollution Committee 38

PUBLIC HEALTH.

Reports of Inspectors of the Medical Department of the Local Government Board 44

VITAL STATISTICS:

Health of English Towns 45
Health of Scotch Towns 45
Health of Irish Towns 46

SPECIAL ARTICLES.

The Classification and Prevention of Deafness 38

Poor-law Medical Officers' Association of England and Wales 39

London County Council and Medical Affairs 41

Epsom College 42

Health Exhibition and Conference 43

Recent Sanitary Reforms in Nottingham 43

Metropolitan Hospital Sunday Fund 44

Medicine and the Law 44

The Services 46

Manchester: Professor Seller's Inaugural Address on Medical Jurisprudence 49

Liverpool: New Professor of Pathology in the University of Liverpool 50

Bristol and the Western Counties: The King and Queen at the Bristol Royal Infirmary 50

Scotland: The Insurance Act and Insurance of Nurses 51

Ireland: Honorary Fellowships in Dublin 51

Paris: Prevention of Cholera.—The Ophthalmic Reaction to Tuberculin 52

Notes from South Africa: Native Labour Debate in Parliament 52

THE NATIONAL INSURANCE ACT.

The Act and the State Sickness Insurance Committee of the British Medical Association 54

Leicester and Rutland Public Medical Service 54

East of Scotland Medical Practitioners and the Act 55

The Income of Married Women under the Act 55

CORRESPONDENCE.

Fleming's (Hecht's) Modification and the Wassermann Test (Dr. P. N. Panton) 48

James Hutchison Stirling (Miss Amelia Hutchison Stirling) 48

Barium Sulphate in X Ray Diagnosis (Dr. William Martin) 48

A Native Operation (Dr. W. Morrison) 48

The Medical Profession and the National Insurance Act (Mr. William Stanwell) 49

A Caution (Dr. A. G. Bateman) 63

MEDICAL NEWS.

Medical Sickness and Accident Society 22

Memorial to Miss Rosa Morison 26

The Factory Girls' Country Holiday Fund 30

Ophthalmological Society 39

The Devon and Cornwall Sanatorium for Consumptives, Didworthy 53

Typhoid Fever at St. Helens 53

Pass-lists of the University of Cambridge, University of Oxford, University of Birmingham, University of Sheffield, and University of Durham 56

Foreign University Intelligence 57

Donations and Bequests 57

The Stanhope Sanatorium: Presentation to Dr. William Robinson 57

Deaths of Eminent Foreign Medical Men 57

Presentation to a Medical Practitioner 57

Caledonian Medical Society 57

Royal Microscopical Society 57

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: The Select Committee on Patent Medicines.—Deaths and Burials Bill 58

House of Commons: Hospitals and Legacy Duty.—District Nursing and the Insurance Act.—Ireland and the Mental Deficiency Bill.—The Treatment of Syphilis.—Beri-beri and Malaria.—Sleeping Sickness.—The Study of Tropical Medicine.—The Opium Habit.—The Medical Profession and the Insurance Act.—The Sanatoria Grants in Ireland 59

Books, &c., received 61

Appointments 62

Vacancies 62

Births, Marriages, and Deaths 63

Notes, Short Comments, and Answers to Correspondents 63

Medical Diary 64

Meteorological Readings 65

Acknowledgments of Communications received 66

INDEX TO VOL. I., 1912 ..... iii.-xlvii.

TITLE-PAGE.

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

ADLARD & SON:—
Fenwick .... Indications for Widely Resecting the Bladder Walls ..... Cover 1

ASH, SONS & CO.:—
Hewitt, Sir F. Nitrous Oxide, &c. 2

BALE, SONS & DANIELSSON:—
Adamson.... Goulstonian Lectures ..... Cover 1
Braun & Lübe..... Practical Parasitology ..... Cover 1
Daniel ..... Arthritis ..... Cover 1
Moullin .... Inflammation of the Appendix ..... Cover 1
,, ... Treatment of Gastric Ulcer ..... Cover 1
Rolleston.... Writing Theses for M.R. and M.D. .... Cover 1

BAILLIERE, TINDALL & COX:—
Bidwell .... Intestinal Surgery 8
Campbell.... Treatment ..... Cover 1
Clarke, E. .. Errors of Accommodation and Refraction of the Eye .... Cover 1
Gardner .... Surgical Anæsthesia ..... Cover 1
Kanavel .... Infections of the Hands ..... Cover 1
McKisack .. Systematic Case Taking ..... Cover 1
Plumfeld .. Anæsthetics ..... Cover 1
Owen..... Cleft Palate, &c. 8

CASSELL & CO.:—
Morris, Sir M. Diseases of the Skin .. 9
Owen ..... Surgical Diseases of Children 8

CHURCHILL, J. & A.:—
Bowlby & Andrewes.. Surgical Pathology .. 5
Cheyne & Burghard.. Practice of Medicine .. 5
Clouston .... Mental Diseases 5
Copin ..... Manual of Pathology.. 5
Cripps ..... Cancer of the Rectum.. 8
,, ... Diseases of the Rectum 8
Hardwicke.. Sight-testing Made Easy 5
Jacobson & Rowlands.. Operations of Surgery.
Lewis ..... Medical Vade-Mecum.. 5
Lucas ..... Practical Pharmacy.. 5
,, ... Dispensing 5
,, ... Prescriptions 5
,, ... Receipts 5
Nolter & Firth..... Hygiene..... 5
Potts..... Electricity 5
Starling..... Human Physiology 5
System of Treatment 5
Wallis ..... Dental Extractions 5

CONSTABLE & CO.:—
Bedrock 9

FROWDE:—
Berkart .... On Bronchial Asthma, &c..... Cover 1

FROWDE AND HODDER & STOUGHTON:—
Bidwell .... Minor Surgery 8

GLAISHER:—
Herschell .. Chronic Affections of the Stomach.. Cover 1

GRIFFIN & CO.:—
Mann ..... Forensic Medicine and Toxicology 8

LEWIS:—
Brockbank .. Heart Sounds, &c. 7
Campbell.... Headache ..... Cover 1
,, ... Flushing, &c. .... ,, 1
,, ... Differences in Nervous Organisation of Man and Woman .. Cover 1
Gould ..... Pocket Medical Dictionary 7
Lewers..... Diseases of Women 7
Martindale & Westcott.. Extra Pharmacopœia.. 7
Moullin .... Enlargement of the Prostate ..... Cover 1
Roth ..... Lateral Curvatures of the Spine ..... Cover 1
Swanzy & Werner.... Diseases of the Eye .. 7
Tilley ..... Diseases of the Nose, &c. ..... Cover 1

LIPPINCOTT CO.:—
Craig..... Parasitic Amœbæ of Man..... 3
Human Embryology 3
Noguchi .... Serum Diagnosis of Syphilis..... 3
Pfaundler & Schlossmann Diseases of Children .. 3

LONGMANS, GREEN & CO.:—
Hare ..... Food Factor in Disease, &c..... Cover 1
Russell..... Preventable Cancer.... Cover 1

MACMILLAN & CO.:—
Ballance .... Cerebral Decompression in Ordinary Practice. 8
Tubby ..... Deformities .... Cover 1

MEDICAL PUBLISHING CO.—
Lane ..... Operative Treatment of Fractures 9
,, ... Cleft Palate and Hare Lip 9

NISBET & CO.:—
Lane..... Treatment of Chronic Constipation 9

REBMAN:—
Gaelps..... Auto-Intoxication 6
Hilger ..... Hypnosis & Suggestion 6
Hirschberg .. Shortsight 6
Mulzer..... Therapy of Syphilis 6
Pels-Leusden Surgical Operations .. 6
Roemer .... Ophthalmology 6

SMITH, ELDER & CO.:—
Ellis ..... Anatomy 6
Gamble .... Animal Life 6
Juler..... Ophthalmic Science .. 6
Lawson..... Diseases &c., of the Eye 6
Leftwich.... Index of Symptoms.... 6
Macleod .... Hygiene for Nurses.... 6
Marshall & Hurst .... Practical Zoology 6
Schäfer .... Practical Histology.... 6

WRIGHT & SONS (BRISTOL):—
Begg ..... Sprue..... 8
McKail..... Public Health Chemistry 8

MEDICAL LIBRARIES, &c.:—
Baker, Birmingham—Book Bargains 8
Beasley & Kelley—Stammering 9
Schnke—Stammering 67
Matthews Bros.—Wood: Application of Trusses .. 8
Norwood Sanatorium—Hare: Inebriety ..... Cover 1
Squire's Companion 45
,, London Hospitals 45

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Addenbrooke's Hospital, Cambridge 82
Administrative County of London .. 82
Beckett Hospital, Barnsley 81
Birmingham Infirmary 79
Borough Hospital, Birkenhead 78
Borough of Hampstead 80
Brentford Union 79
Bristol General Hospital 79
Cancer Hospital, Fulham-road 78
Canterbury Borough Asylum 82
Carnarvonshire & Anglesey Infirmary 81
Chelsea Hospital for Women 82
City and County of Newcastle-upon-Tyne Tuberculosis Dispensary 79
City of London Hospital for Diseases of the Chest 78
Corporation of Manchester 82
County and City Asylum, Powick .. 79
County Asylum, Dorchester 81
Coventry and Warwickshire Hospital 80
Croydon General Hospital 80
Derbyshire Royal Infirmary, Derby.. 80
Dreadnought Hospital, Greenwich .. 79
Dumfries and Galloway Royal Infirmary 81
Essex County Hospital, Colchester .. 80
Flintshire Education Committee..... 79
Great Yarmouth Hospital 78
Grimsby and District Hospital..... 78
Gordon Hospital for Rectal Diseases 81
Hampstead General Hospital 81
Hereford County and City Asylum .. 82
Highlands and Islands of Scotland .. 81
Horton Infirmary, Banbury 78
Hospital for Consumption, Brompton 81
Hospital for Sick Children 78
Hull Royal Infirmary 81
Jessop Hospital for Women, Sheffield 81
King's College Hospital, London .. 80
King Edward VII.'s Hospital, Cardiff. 80
King Edward VII. Welsh National Memorial 79
Leicester Infirmary 81
London Temperance Hospital 80
Lincoln Mental Hospital 78
Macclesfield General Infirmary 79
Manchester and Salford Hospital for Skin Diseases 81
Manchester Hosp. for Consumption.. 78
Metropolitan Hospital, Kingsland-rd. 80
National Hospital for the Relief and Cure of the Paralysed 79
Nottingham General Dispensary 78
Oldham Royal Infirmary 82
Parish Council, Papa Westray, Orkney 81
Parish of Fulham 80
Parish of Leicester..... 82
Parish of Rousay and Egilshay, Orkney 81
Parish of St. Giles-in-the-Fields 82
Radcliffe Infirmary and County Hospital, Oxford 79
Royal Alexandra Infirmary, Paisley. 79
Royal Dental Hospital of London 82
Royal Devon and Exeter Hospital.... 78
Royal Ear Hospital, Soho 78
Royal Infirmary, Sheffield..... 80
Royal Naval Medical Service 78
Samaritan Free Hospital for Women, Marylebone-road 78
Sheffield Royal Hospital 78

APPOINTMENTS—(Continued).
Southampton Free Eye Hospital 81
Staffordshire General Infirmary..... 81
St. Mary's Hospital..... 80
Tunbridge Wells General Hospital .. 81
University of Manchester 78
Walsall and District Hospital..... 82
Wandsworth Union Infirmary 81
Warneford Gen. Hos., Leamington Spa 80
West Derby Union 80
West London Hospital 79
Westminster General Dispensary 81
Whitehaven and West Cumberland Infirmary 79
Woolwich Tuberculosis Dispensary .. 80

ASSISTANCIES, MEDICAL..... 83

ASYLUMS, HOMES, &c.—
Armstrong, Castlenan 78
Ashwood House, Kingswinford 70
Association of Medical Men Receiving Resident Patients 77
Barnsley Hall, Bromsgrove 70
Barnwood House Hospital 71
Bishopstone House, Bedford..... 70
Brunton House, Lancaster..... 77
Buntingford House Retreat, Buntingford 74
Camberwell House, Peckham-road .. 70
Cheadle Royal 70
Clarence Lodge, Clapham-park 71
Colthurst House, Warford..... 70
Coppice, The, Nottingham..... 71
Coulsdon Sanatorium, Surrey 77
Croydon Mental Hospital 69
Dalrymple House, Rickmansworth .. 74
Dartmoor Sanatorium 75
David Lewis Colony, Alderley Edge.. 70
Dinsdale Park, Darlington 71
East Anglia, Leadenhall-street 78
Ghyllwoods 73
Grove House, Church Stretton..... 71
Grove, The, Catton, Norwich 71
Haslemere Nursing Home..... 77
Haydock Lodge, Newton-le-Willows.. 72
Heigham Hall, Norwich 70
Hendon Grove, Hendon 75
Home for Epileptics, Maghull 70
Institute for Electro-Medical, &c., Treatment 72
Invernith Lodge Sanatorium, Colinsburgh 73
Kingsdown House, Box 70
London Fever Hospital 71
Mailing Place, Kent 71
Malvern Hydropathic 77
Manna Mead, Blackheath 77
Melbourne House, Leicester 77
Meyrick, Brighton 77
Middleton Hall, Co. Durham 70
Moat House, Tamworth 71
Mount Pleasant, Wanstead 78
Mount Vernon Sanatorium, Northwood 74
Netherbrook Nursing Home..... 77
Newmains Retreat, Lanarkshire 74
Nordrach in Wales Sanatorium 74
Nordrach-on-Dee, Banchory 74
Northlands Retreat, Wandsworth.... 77
Northumberland House, Finsbury-park 72

ASYLUMS—(Continued).
Northwoods House, Winterbourne .. 73
Norwood Sanatorium, Ltd. 73
No. 770, L.O., Strand..... 77
No. 802, L.O., Strand..... 77
Oxen Island, Heybridge 73
Peckham House 72
Plympton House, South Devon 71
Portsmouth Corporation Mental Hospital 71
Rugby Sanatorium, Northallerton.. 77
St. Andrew's Hospital, Northampton. 71
St. Luke's Hospital, E.C. 70
Shaftesbury House, Formby-by-the-Sea 72
Springfield House Private Asylum, Bedford 71
Stocker, Craven-street 77
Streeton House, Church Stretton 71
The Grange, Rotherham 70
Vale of Clwyd Sanatorium..... 74
Warneford Asylum, Oxford 70
White Lodge, Beltinge 77
Wye House, Buxton 71

COMPANIONS:—
No. 851, L.O., Strand..... 83

FINANCIAL, &c.—
Equitable Reversionary Interest Soc.. 67

HEALTH RESORTS, BATHS, &c.:—
Alexandra Therapeutic Institute 76
Bad Wildungen 75
Leysin, Switzerland 76
Nieuport Bains b. Ostende..... 76
Peebles Hotel Hydropathic 77
Plombières 76
Royal Rms..... 75
St. Beatenberg 76
St. Joachimsthal..... 76
Smedley's, Matlock 76
Spa, Belgium 76
White Lodge Private Hydro 77
Woodhall Spa Baths, &c. 75

HOTELS:—
Prospect Hotel, Harrogate 75
White Hart Hotel, Margate 77

HOUSE & ESTATE AGENTS:—
Bartlett & Son, Bush-lane 84
Betterton, Ashby-de-la-Zouch 84
Edgar & Co., Old Broad-street 84
Haddon & Turnbull, Hawick 84
Ley Clark, Wimpole-street 84
MacDonald, Inverness 84
Rawley, Cross & Co, Uxbridge-road 84
CONSULTING-ROOMS:—
Elliott, Son & Boyton, Vere-street .. 85
No. 886, L.O., Strand..... 84

LIFE & FIRE ASSURANCES:—
Lloyd's Special Motor Policy 85
National Provident Institution 67
Prudential 68

MASSAGE:—
London School of Massage 68
McCarthy, Drayton gardens—Massage 68

MEDICAL ACCOUNTANTS, &c.. 84

MEDICAL AGENTS:—
Blundell & Rigby 86
Fieldhall, Limited 86
Lee & Martin, Birmingham 86
Manchester Clerical, &c., Association. 86
Manchester Medical Agency 86
Medical Agency 86
Moore & Co. 85
Needes, Herbert 86
Needes, J. C. 86
Peacock & Hadley 86
Scholastic, Clerical, &c., Assoc. 87
Turner 87

MEDICAL SCHOOLS:—
(LONDON.)
Medical Graduates' College and Polyclinic 67
St. Mary's Hospital Medical School.. 61
West London Post-Graduate College.. 66
(PROVINCIAL, &c.)
Edinburgh University Residential Medical College 67
University of Bristol 67
University of Manchester 65

NURSING INSTITUTES:—
General Nursing Association 69
Hospital for Sick Children, Great Ormond-street 88
Leeds Trained Nurses' Institution.... 66
London Nurses' Association 66
Male Nurses Temperance Co-operation 69
Mental Nurses Co-operation 69
National Hospital Male Nurses' Assoc. 69
Nurses' Co-operation, Portland-place.. 69
Registered Nurses' Society 69
St. John's House 69
St. Luke's Hospital, E.C. 69
Temperance Male Nurses Co-operation 69
The Retreat, York 68
Temperance Association of Male Nurses, Ltd. 69

OFFICIAL NOTICES:—
City of London Lying-in Hospital 66
College of Preceptors 64
Epsom College 66
Guy's Hospital 66
Henry Saxon Snell Prize..... 66
London Post-Graduate Association .. 64
London school of Clinical Medicine.. 66
Medical Graduates' College, &c..... 64
North-East London Post-Graduate College 66
Queen Charlotte's Lying-in Hospital . 63
Royal London Ophthalmic Hospital.. 67
St. Bartholomew's Hos. and College.. 64
Throat Hospital, Golden-square 66
University of Birmingham 65
Walter Myers Travelling Studentship 85
West End Hospital for Diseases of Nervous System 64
York-road General Lying-in Hospital, Lambeth 66

PARTNERSHIPS & PRACTICES 83

RAIL. & STEAMSHIP CO.'S..... 83

TUTORS & LECTURERS:—
Knight ..... 67 | No. 442, L.O.. 85
Med. Corres. Coll. ..... 67 | Schnelle 9
Weymouth.... 64

For Index to Trade and Miscellaneous Advertisements see page 4.

The Croonian Lectures

ON

THE PATHOLOGY OF IMMUNITY,

AS ILLUSTRATED BY THE BEHAVIOUR OF FLUID EXUDATES FROM THE TISSUES AND VARIOUS BODY CAVITIES, IN ACUTE AND CHRONIC BACTERIAL INFECTIONS, MORE ESPECIALLY WITH REGARD TO THE PROBLEM OF AGGRESSINS.

Delivered before the Royal College of Physicians of London

BY LEONARD S. DUDGEON, F.R.C.P. LOND.,

BACTERIOLOGIST TO, AND JOINT LECTURER ON PATHOLOGY AT, ST. THOMAS'S HOSPITAL; DIRECTOR OF THE HOSPITAL LABORATORIES.

LECTURE IV.[1]

Delivered on June 20th.

MR. PRESIDENT AND GENTLEMEN,—In our last lecture I shall endeavour to regard the aggressin problem in its relation to human disease.

ON THE EFFECT OF INJECTING EXUDATES, IMMUNE SERUM, AND NORMAL SERUM INTO ANIMALS SUFFERING FROM BACTERIAL INFECTION.

Large numbers of mice were employed to test the action of the pneumococcus "aggressins." Mice, owing to their size, were not suitable for the preparation of the "aggressins," which, therefore, were obtained from pneumococcus infection in rabbits. The exudates were either centrifugalised and filtered through a Doulton candle or centrifugalised at high speed for some time, but no antiseptic was added in either case. By this means exudates were collected and stored on ice until they were ready for use, which was always within 24 hours in the case of the centrifugalised samples, and as no other treatment was adopted these exudates resembled as far as possible the original fluids. It was unfortunate, however, that some samples of aggressins prepared by centrifugalisation only caused death in the inoculated mice owing to the presence of the pneumococcus in spite of the high speed centrifugalisation which had been adopted; but apart from this defect, which only occurred in a few instances, definite results were obtained. In each experiment, which was subdivided into groups each of which consisted of six mice, it was possible to control the effect of the pneumococcus in saline with the pneumococcus made up to the same dose with filtered or centrifugalised exudate, and lastly, the exudate itself was always examined. In the first series of experiments the mice were inoculated either with a saline emulsion of the pneumococcus or with the filtered aggressin alone, or with this aggressin and the pneumococcus. Those mice which received the pure aggressin were not ill at any period of the experiment, but those inoculated with the aggressin and the pneumococcus died much more rapidly than those inoculated with the pneumococcus and saline. The mice which received only the aggressin were inoculated three days later with the pneumococcus, but no activation occurred as compared with the results obtained with control animals, and another series of mice treated on exactly similar lines gave identical results. A series of mice, divided into groups of equal numbers, were inoculated with a 72 hours culture of the pneumococcus in saline, or with the pneumococcus and filtered pneumococcus exudate, or with the pneumococcus and fresh centrifugalised pneumococcus exudate, or with fresh pneumococcus exudate alone. Mice inoculated with filtered exudate acting with the pneumococcus died more rapidly than the control mice, but the effect was most marked in the case of those mice which had received pneumococcus and fresh exudate; here, unfortunately, the exudate itself caused a fatal result in a few of the mice owing to the fact that it was only centrifugalised, and no antiseptic was added.

Attempts were made to immunise mice with the pneumococcus exudate of rabbits by repeating the injection, but no appreciable resistance was established to the pneumococcus by this method. It would seem from these results that filtered pneumococcus exudate prepared from rabbits and injected into mice together with the pneumococcus causes a more rapidly fatal result, but this aggravated action of the exudate is similar to the results obtained by Cole and Smirnow,[2] who found that mice injected intraperitoneally with the pneumococcus and normal rabbit or pigeon serum died more rapidly than control mice which received the pneumococcus only. In their experiments the serum was injected once only, so that there could be no question of hypersensibility to the serum, and they found that rabbits' or pigeons' serum injected by itself did not affect the mice in any way, which is confirmed by my results with mice injected intraperitoneally with filtered rabbit exudate and rabbit blood serum without producing any clinical effect. If we wish to emphasise the aggressive action which occurred in my experiments, we must remember that a foreign exudate was employed owing to the impossibility of obtaining sufficient exudate from mice, and the results obtained by Cole and Smirnow are sufficient to explain the aggravated effect apart from the direct action of an exudate.

Schlesinger[3] attempted to prove that bile also possesses similar action to Bail's aggressins in aggravating a bacterial infection. He found that animals were killed by bacteria of low virulence if bile was injected within four hours of the infection or up to a period of two days after the culture of the typhoid or colon bacillus had been inoculated. Animals which succumb to the combined infection, according to Schlesinger, show phagocytosis only at the beginning of the infection.

Although Schlesinger considers that a true aggressive action has been established by these experiments, they can be regarded in quite a different light owing to the most interesting paper published by Major Lyle Cummins.[4] This investigator proved by numerous experiments that sodium taurocholate is able to inhibit the bactericidal property of normal blood serum by interfering with the action of the complement, and thus would favour the multiplication of the bacilli and produce an effect similar to that which may occur from aggressive exudates.

Guinea-pigs were weighed and divided into batches of known weight and then injected with the proteus bacillus as compared with those animals which received this bacillus and a few minutes later either blood serum or exudate. The average weight of six guinea-pigs (Group 1) was 266 grammes, and each of these received 0·2 c.c. saline emulsion of an active culture of bacillus proteus, while those in Group 2, of which the average weight was 480 grammes, received the same dose of the bacillus and a few minutes later 2 c.c. of filtered proteus aggressin prepared from a rabbit. In the case of Group 3 the average weight was 316 grammes, and these animals were injected with the bacillus, followed at a similar interval with 2 c.c. of fresh serum from a rabbit which had been immunised with this micro-organism. The results in all instances, however, were identical, as there was no aggravation of the bacterial effect by the injection of the filtered exudate, and neither was there any benefit from the rabbit serum. The injections were made in every instance intraperitoneally.

In another series of experiments guinea-pigs were inoculated with either a saline emulsion of bacillus proteus or a similar dose of the bacterial emulsion together with filtered rabbit proteus exudate. In the case of those animals, however, which received the bacillus alone a fatal result occurred within 24 hours, while the guinea-pigs injected with bacillus and exudate all recovered. Here the exudate acted as a protective agent and was not aggressive, but it is well known to all who have studied this subject that exudates may not necessarily be aggressive. Rabbits infected on the same lines as these guinea-pigs were undoubtedly affected in a similar manner by filtered exudates injected with the proteus bacillus. Those rabbits which received proteus bacilli only died within 30 hours, while those injected with the *filtered* exudate in addition lived for several days.

A series of guinea-pigs of approximately the same weight

[1] Lectures I., II., and III were published in THE LANCET of June 15th (p. 1593), 22nd (p. 1671), and 29th, 1912 (p. 1737).

[2] R. J. Cole and M. R. Smirnow: The Pro-infective ("Aggressive") Action of Normal Blood Serum, Johns Hopkins Hospital Bulletin, September, 1908, p. 249.

[3] Ernst Schlesinger: On the Aggressive Effect of Bile in Typhoid and Coli Infections, Berliner Klinische Wochenschrift, October, 1908.

[4] S. Lyle Cummins: The Anti-bactericidal Action of the Bile Salts, Journal of Hygiene, vol. xi., No. 3, 1911.

were inoculated intraperitoneally either with normal saline or centrifugalised and carbolised bacillus coli exudate derived from the peritoneum of guinea-pigs or filtered bacillus coli exudates also obtained from guinea-pigs. In each instance the pigs received one hour later an intraperitoneal injection of a saline emulsion of bacillus coli. Those animals which were inoculated with the *filtered* exudate previous to the bacillus were first affected and died more rapidly than those which had been inoculated with the centrifugalised exudate, while both groups of guinea-pigs succumbed much more rapidly to the combined injection of bacillus coli and exudate than to the bacillus coli and normal saline. Here the different results obtained were sufficiently striking as to leave no doubt that the exudates accelerated the onset of symptoms and of the fatal results. In the same way Danysz exudates generally accelerated the action of the bacillus Danysz, whether they were given at the same time, or just previous to, or soon after, the organism had been inoculated. Guinea-pigs inoculated with bacillus Danysz and then with the serum of rabbits which had been immunised with Danysz exudates from infected rabbits lived longer than control guinea-pigs, and completely recovered provided the serum was injected into the same serous sac as the bacillus. The interval between the inoculation of the bacillus and the serum was generally about two hours, which is a long period considering the doses which were employed and the rapidity with which the bacillus invades the tissues of the animal and produces its fatal result. Kikuchi[5] also immunised rabbits, guinea-pigs, and sheep with Shiga-Kruse dysentery aggressin, and obtained a serum which he considered to be antitoxic and anti-aggressive. Bail[6] believes that this aggressin immunity occupies a position somewhat similar to that produced by living attenuated bacteria. Kikuchi[7] immunised a rabbit with plague aggressin, and found that the serum of this animal afforded protection to other rabbits, guinea-pigs, and rats; he also noted that the immunisation was more effective if the plague aggressin was injected intravenously. Weil[8] found that sterile exudates obtained from rabbits injected with chicken cholera were harmless when injected alone, while they had the power of conferring immunity on the inoculated animal. Weil showed further that this aggressin immunity afforded protection, not only against bacteria, but also against the active aggressive exudates. I found that normal guinea-pig or rabbit serum has also produced good results when injected locally, as in the case of the immune serum, especially when the animal's own serum or the normal serum of an animal of the same species was employed.

THE CYTOLOGICAL EXAMINATION OF PERITONEAL EXUDATES OBTAINED AT VARIOUS PERIODS OF INFECTION IN ANIMALS INOCULATED WITH BACTERIA AND "AGGRESSINS," AND IN CONTROL ANIMALS INOCULATED WITH BACTERIA ONLY; AND ON THE COMPARATIVE PROTECTIVE VALUE OF PERITONEAL EXUDATES AS CONTRASTED WITH BLOOD SERUM AT THE VARIOUS PERIODS OF INFECTION.

These experiments were undertaken for the purpose of ascertaining whether the so-called aggressive exudates inoculated into animals together with bacteria altered the cytological and protective properties of the exudates which formed as a result of the inoculation, as contrasted with those produced in control animals inoculated with bacteria only. Experiments were also made on similar lines with animals previously immunised with dead bacterial cultures.

Observations were made at various periods commencing with 15 minutes from the time of inoculation up to a period of 24 hours, but it is at the earliest periods of infection that most of the chief points of interest arise. The bacterial injections were always made into the peritoneum of guinea-pigs, and the exudates obtained were prepared either by centrifugalisation alone or by centrifugalisation and filtration through a Doulton candle. The exudates which were employed for these experiments on aggressins were collected from guinea-pigs which had just died, and from animals on the point of death about 20 hours after inoculation. The peritoneal fluid was collected from all the pigs which had been injected, and in some cases was kept separate; otherwise it was mixed together in bulk. It was examined for the presence of complement before it was used as an aggressin, as it has been found usually that the least aggressive exudates contain complement, while the most actively aggressive are either complement free or only contain a trace.

The peritoneal fluid which was to be tested cytologically and for protective substances was obtained from guinea-pigs by killing the animals at the necessary period with chloroform and then the peritoneal fluid was pipetted off rapidly *immediately* after death. Great care was taken to prevent the escape of blood into the peritoneal cavity when the fluid was being removed owing to the injection of the peritoneal vessels which was of such common occurrence. If any escape of blood occurred while the sample of peritoneal fluid was being collected it was put aside and was not employed for these investigations, but under ordinary circumstances it was examined cytologically and the remainder was centrifugalised and then tested for protective substances. In the early stages the peritoneal fluid which formed as a result of bacterial infection generally resembled slightly turbid saline, but subsequently it was coloured more like blood serum, and was generally thicker.

The blood was obtained from one of the main arteries and the serum was collected as soon as possible. In the phagocytic experiments guinea-pig's leucocytes were employed, as if the action of these exudates is really "aggressive," then it is absolutely essential to use the animal's own leucocytes or the leucocytes of an animal of the same species. The leucocytes were procured by inoculating normal guinea-pigs intraperitoneally with a saline suspension of aleuronat, and pipetting the peritoneal fluid which has collected some four to five hours later into citrated saline. The leucocytes were then washed in saline and a thin emulsion free from clumps was obtained. It was thus possible to inoculate animals, obtain the exudate, and test this cytologically and for protective substances with normal guinea-pig's leucocytes, and with sensitised red cells, within a short interval from its removal from the body, and to contrast the results with those obtained with the animal's blood serum. The peritoneal exudates were tested for the presence of complement, both before and after dilution with saline, by the addition of a 5 per cent. suspension of washed sheep's red cells in saline and a powerful hæmolytic immune body sufficiently diluted. It will probably be most satisfactory if a series of experiments are referred to which concern the intraperitoneal inoculation, under identical conditions, of five guinea-pigs with 0·5 c.c. of a saline emulsion of a 24 hours culture of the following bacteria—B. pyocyaneus, B. coli, B. Danysz, staphylococcus aureus, and B. prodigiosus. In each case the animal was killed and the peritoneal fluid examined cytologically and for protective substances 15 minutes after the inoculations were made. The blood was also examined and the results contrasted with those obtained with the peritoneal exudates. In each instance the exudate was plentiful and of a slightly turbid watery appearance, and was found to be most abundant in the region of the left kidney. All these five specimens ultimately showed a fine white clot suspended in the fluid such as so commonly occurs in the cerebro-spinal fluid in man. The various samples of fluid were treated with sensitised red cells both before and after the fluid was diluted with saline; complete hæmolysis occurred with the undiluted fluid and also with the fluid diluted to the extent of 1 in 5, but when further diluted only partial hæmolysis was recorded. The exudates were also tested with washed guinea-pig's leucocytes and with the bacillus coli and the staphylococcus aureus in each experiment, while the animal's blood serum was treated in a similar manner. It was found that in each case the peritoneal fluid was capable of exciting phagocytosis, especially in those experiments in which the bacillus pyocyaneus and bacillus Danysz had been employed to excite the exudate, but also with the non-pathogenic bacillus prodigiosus. The lowest phagocytic counts were obtained when the peritoneal fluid of the coli pig was tested with the bacillus coli, and the exudate of the aureus pig was treated with the staphylococcus aureus. The predominant cells were those which most resemble the small lymphocytes of the peripheral blood,

[5] Kikuchi: Archiv für Hygiene, vol. liv.
[6] Bail: Aggressivity and Bacterial Substances, Münchener Medizinische Wochenschrift, 1905.
[7] Kikuchi: On Passive Aggressin Immunity against Plague Bacilli, Folia Serologica, 1909, No. 2.
[8] Weil: Infection and Immunity in Chicken Cholera, Archiv für Hygiene, 1905, No. 52.

and to a less extent the eosinophils and endothelial cells, which at this stage were acting as the chief phagocytes. These results, however, can be more readily appreciated when examined in a tabular form.

TABLE F.—*On the Result of the Examination of the Peritoneal Fluid Withdrawn 15 Minutes after Bacterial Inoculation.*

Nature of experiment.	Cytology.	Phagocytosis. Number of bacteria engulfed by 50 cells.		Hæmolysis.		
		B. coli.	Staphylococcus aureus.	Undiluted.	Dilution 1 in 5.	Dilution 1 in 10.
1. 0·5 c.c. B. pyocyaneus.	Small lymphocytes 21%; eosinophils 63%, and of these 56% were phagocytic.	45	44	Complete hæmolysis.	Complete hæmolysis.	Incomplete hæmolysis.
2. 0·5 c.c. B. coli.	Small lymphocytes 77%; endothelials 19%, of which 26% were phagocytic.	14	40	"	"	"
3. 0·5 c.c. staphylococcus aureus.	Small lymphocytes 52%; eosinophils 22%, of which 9% were phagocytic.	17	20	"	"	Tinging.
4. 0·5 c.c. B. Danysz.	Small lymphocytes 81%; endothelials 14%, of which 35% were phagocytic.	85	66	"	"	Marked hæmolysis.
5. 0·5 c.c. B. prodigiosus.	Small lymphocytes 63%; endothelials 27%, of which 11% were phagocytic.	84	52	"	"	—

The phagocytic value of the blood serum of these animals varied from 250-200 per 50 cells for the B. coli and from 200-160 for the staphylococcus aureus.

It is evident that 15 minutes after intraperitoneal inoculation of bacteria—pathogenic or non-pathogenic—an exudate appears which contains abundance of complement and a certain amount of opsonin, although much less than that of the animals' blood serum; and the peritoneal fluid possesses these properties at a period when the chief cell is the "small lymphocyte,"[9] and while the common polynuclear phagocyte is present only in very small numbers. Dudgeon and Ross,[10] in a paper published in 1906, drew attention to the cytological characters of the peritoneal fluid at various stages following intraperitoneal inoculation of bacteria, toxins, and non-toxic substances, such as saline, and chalk suspended in saline. They showed that the small lymphocyte was the predominant cell in the earliest stages (15 minutes), while up to the end of the first two hours the eosinophil was one of the most important of the peritoneal cells; in fact, the eosinophils and endothelials were the chief phagocytes at these periods. These results are confirmed in the present series of experiments.

ON THE INOCULATION OF ANIMALS WITH BACTERIA AND EXUDATE SIMULTANEOUSLY.

Two guinea-pigs were inoculated intraperitoneally with 0·25 c.c. of a virulent culture of B. Danysz and 0·5 c.c. of Danysz aggressin. One pig was examined one hour and the other five hours later. The aggressin, which was a thick sticky fluid, was obtained from the peritoneum of several guinea-pigs inoculated with the bacillus; the exudate was centrifugalised only and no antiseptic was added. The experiments were carried out the same day as the aggressin was prepared and control animals were employed in each case. In the one-hour experiments the number of leucocytes which collected in the free peritoneal fluid was estimated, but this could not be managed in the five-hour experiments owing to the clumping of the white cells which occurs at this stage. The number of leucocytes in the peritoneal fluid at the end of one hour was found to be 4400 per c.mm. as compared to 7700 per c.mm. in the control, while the percentage of small lymphocytes was high in both experiments, especially in the control, in which they totalled 78·8 per cent. The phagocytic activity of the blood serum and peritoneal fluid in both the one-hour animals was estimated and contrasted, and it was found that in the case of the guinea-pig injected with bacillus Danysz together with the *aggressin* the peritoneal fluid was practically devoid of phagocytic powers, while that of the control animal was found to be very active. The activity of the peritoneal exudate of the other aggressin pig, which was very ill when examined five hours from the time of inoculation, was of about equal value with the blood serum, although both serum and exudate were much less active than the blood serum of the control guinea-pig.

Danysz aggressin was prepared from other guinea-pigs in the usual manner except that the fluid was also filtered through a Doulton candle, and when inoculated with the bacillus Danysz it aggravated the effect of the bacillus, leading to a fatal result more rapidly than in the case of the control animal. Two guinea-pigs were inoculated in an identical manner, and the experiments were completed at the end of one hour.

If the peritoneal exudate obtained from the pig which died when injected with both aggressin and the bacillus in 20 hours is compared with that of the control pig, and these results are contrasted with those obtained with exudates from guinea-pigs under similar conditions at the end of one hour, we obtain some idea of the effects of the aggressin.

TABLE G.—*To Contrast the Effect of "Aggressin" on the Peritoneal Exudates of Animals Killed 20 Hours and One Hour after Inoculation.*

—	Cytology.	Phagocytosis. Number of bacteria in 50 leucocytes. Peritoneal fluid.		Phagocytosis. Number of bacteria in 50 leucocytes. Blood serum.		Hæmolysis.
		B. Danysz.	Staphylococcus aureus.	B. Danysz.	Staphylococcus aureus.	
1. Guinea-pig inoculated with 0·25 c.c. B. Danysz and 0·75 c.c. filtered aggressin. Died in 20 hours.	Polynuclears present in clumps.	17	50	120	159	None.
2. Control animal inoculated with bacillus and saline. (Same quantities.) Very ill in 20 hours; chloroformed.	Polynuclears 68·8%, of which 82% were phagocytic.	56	98	151	151	Complete hæmolysis.
3. Similar to Experiment 1, only animal was killed *one hour* after inoculation (Aggressin.)	Polynuclears 67·4%.	113	112	154	212	"
4. Similar to Experiment 2, only animal was killed *one hour* after inoculation. (Saline.)	Small lymphocytes 87%.	84	120	132	205	"

The absence of complement in the peritoneal fluid of the guinea-pig which died in 20 hours after receiving an intraperitoneal injection of "aggressin" and the bacillus can be explained on the ground that owing to the animal's death it had been absorbed and the majority of the opsonin was removed from the fluid in a similar way. It was ascertained from these experiments and many others which were completed that the amount of opsonin may be as great at the end of one hour from the time of inoculation as at any other period, while at the longer intervals, such as 20 hours, the opsonic and complement content of the peritoneal fluid may be insignificant. It would seem that in the case of virulent organisms the protective substances are used up rapidly, so

[9] This term refers to the so-called small lymphocyte met with in various effusions.

[10] L. S. Dudgeon and E. A. Ross: An Investigation on Phagocytosis, Transactions of the Pathological Society of London, vol. lvii., Part II., 1906.

that an exudate may after a few hours be much less active than that produced by organisms of less virulence; thus the seat of infection may also become that of least resistance, and for this reason the bacteria rapidly acquire the upper hand.

A guinea-pig was inoculated with 0·1 c.c. bacillus coli and 0·5 c.c. saline, while another pig received the same dose of bacillus and 0·5 c.c. of filtered coli aggressin. The peritoneal exudate, which was examined in each case 18 hours later, was found to be thick and turbid and to consist chiefly of polynuclear cells. The opsonic content of the exudate was less than half that of the blood serum, but was similar in each instance. Two further experiments were made with identical substances, but the animals were killed 15 minutes from the time of inoculation. The phagocytic results were very similar to those recorded at the end of 18 hours, and it has been found in this experiment and in many others that the opsonic content of the peritoneal fluid 15 minutes after inoculation is often equal to, and may be more than, that in the 20-hour experiments, whether the animals have also received aggressin or otherwise.

The complement content of the peritoneal exudate is well shown in the case of four guinea-pigs which succumbed to a Danysz infection in 20 hours; in three of these the peritoneal fluid was unable to act as complement even when present in excess, but in the case of one pig the fluid was abundant, and was able to give rise to incomplete hæmolysis when added to sensitised red cells. An aggressin which contained complement was kept in the ice-safe over night after being centrifugalised for some hours, and 0·5 c.c. was injected into the peritoneum of a guinea-pig. When the animal was examined four hours later a small quantity of peritoneal fluid containing 38·25 per cent. of polynuclears was present. The peritoneal fluid had the same opsonic content for the bacillus Danysz and the staphylococcus aureus as the animal's blood serum, and the complement activity was also equal to the animal's serum. This experiment proves that aggressin by itself may be capable of exciting the protective substances of the body to the seat of infection, as known to occur with blood serum and many other substances.

A series of guinea-pigs were inoculated with bacillus Danysz and various Danysz exudates prepared by centrifugalisation only. One sample of exudate was free from complement, another sample contained some, while another was as active as the blood serum of the guinea-pig which provided the specimen. Three pigs were inoculated with the same dose of the bacillus and of the various samples of exudate, while the control animals received bacillus and saline. Each animal was examined five hours after the inoculation of the various mixtures, but the amount of opsonin present in the peritoneal exudates was abundant for both the specific organism and the staphylococcus aureus—in fact, the degree of phagocytosis approximated closely to the blood sera of the infected animals. There was also active complement present. It would appear from these and other experiments that Danysz exudates prepared by centrifugalisation only and then injected with the bacillus do not affect the characters of the peritoneal exudate which collects during the five hours after inoculation.

THE EXAMINATION OF THE PERITONEAL EXUDATE OF NORMAL AND IMMUNE GUINEA-PIGS INOCULATED WITH B. COLI AND B. DANYSZ.

Guinea-pigs were immunised with dead cultures of bacillus coli and bacillus Danysz, by intraperitoneal inoculation, and then injected with young culture of these bacilli so as to ascertain if possible whether the injection of bacilli into the peritoneum of immunised animals would give rise to differences in the production of protective substances from similar inoculations into the peritoneum of normal guinea-pigs. In these experiments the immunity which was produced was both local and general, and the infection occurred in the local area of immunity. The guinea-pigs used for the coli experiments received at a week's interval an injection of 540,000,000 and 720,000,000 of bacillus coli vaccine, and the other pigs were injected with 250,000,000 and 375,000,000 of Danysz vaccine. These experiments were only of 15 minutes' and one hour's duration, as it is especially at such periods that results of interest are obtained. The immunised animals were inoculated with a constant dose of 1 c.c. of a saline emulsion of a young culture of the bacillus coli or bacillus Danysz according to the experiment, while some of the immune animals were inoculated with the staphylococcus aureus so as to contrast the effect of injecting immune animals with a foreign organism as compared with the specific bacillus. The exudate present in the immunised Danysz animals was thick and turbid and contained numerous cells, while in the control pigs the fluid was thin and abundant, but in the bacillus coli animals the amount of peritoneal exudate appeared to have no direct relationship to the nature of the experiment. It is a fact of interest that the exudate which collects in the peritoneum of the immunised animals at the end of one hour may have a greater or equal power to excite phagocytosis than the blood serum of the animal, while control animals treated in a similar matter do not show such active phagocytosis, and there is evidence that this high degree of phagocytosis was specific. There was also active complement present in the exudate in each case. Active local immunity as a result of intraperitoneal immunisation must obviously be of great service to an animal infected in the immune area, but it is not a constant result, as it was absent in all my coli experiments.

TABLE H.—*To Contrast the Action of Peritoneal Exudates Obtained from Guinea-pigs Immunised with Bacillus Danysz and Control Animals One Hour after the Intraperitoneal Inoculation of Bacillus Danysz or Staphylococcus Aureus.*

Method employed.	Result.					
	Hæmolysis.	Phagocytosis.				
	Peritoneal fluid.	Number of leucocytes counted.	Number of bacteria engulfed.			
			Peritoneal fluid.		Blood serum.	
			B. Danysz.	Staph. aureus.	B. Danysz.	Staph. aureus.
1. Immune animal. Injected with B. Danysz.	Complete hæmolysis.	50	155	38	88	100
2. Control animal. Injected with B. Danysz.	,,	50	48	50	132	114
3. Immune animal. Injected with staphylococcus aureus.	,,	50	104	50	110	111
4. Control animal. Injected with staphylococcus aureus.	,,	50	66	54	163	153

In the coli experiments the opsonic value of the exudates was feeble for the bacillus coli and the staphylococcus aureus as compared with the results obtained with guinea-pigs injected with the bacillus Danysz. There was nothing of interest in the cytological character of the peritoneal fluid in any of these animals injected with the staphylococcus aureus.

TO SHOW THE EFFECT OF INJECTING AN OLD CULTURE OF BACILLUS COLI AND ITS POWER OF EXCITING PROTECTIVE SUBSTANCES, EVEN IN THE PRESENCE OF COLI AGGRESSINS.

A series of guinea-pigs were inoculated with a very inactive culture of bacillus coli and coli aggressin, while the control pigs received the bacillus alone. The aggressin was prepared by centrifugalising and then filtering a coli exudate through a Doulton candle. The bacillus was an old culture made into an emulsion with saline and kept on ice for 11 days, and 0·5 c.c. of the emulsion was used for intraperitoneal injection into guinea-pigs. A guinea-pig was inoculated with 0·5 c.c. of the bacillary emulsion together with 0·5 c.c. of aggressin, while a control pig received the bacillus alone, but this animal was never affected by the injection, and when killed 20 hours later the peritoneum was normal. The pig, however, which received bacillus and *aggressin* was very ill within a few hours and moribund 20 hours from the time of inoculation. Other guinea-pigs were inoculated in a similar manner, and the peritoneal exudate

was examined one hour after inoculation; others were inoculated and killed at an interval of 15 minutes.

In most of these experiments the peritoneal exudate was much less abundant than usual, and the bacilli apparently were not visible in film preparations of the exudates after an interval of one hour. It would seem that owing to the age and inactivity of the bacillus it produced little response in the peritoneum of the infected animals even in the presence of the aggressin, with the exception of the first experiment referred to. The scarcity of bacilli in the film preparations and the feeble response which was excited by injecting the bacilli, even in the presence of the aggressin, are shown by the result of the examination of the various exudates for protective substances. To confirm these results it is only necessary to compare those obtained and recorded with active bacillus coli cultures.

TABLE J.—*The Effect of Injecting Old Cultures of Bacillus Coli Alone and in the Presence of Aggressins.*

Nature of experiment.	Examined.	Cytology.	Number of bacteria engulfed by 50 cells.		Hæmolysis.		
			Peritoneal exudate.	Blood serum.	Peritoneal fluid.		
			B. coli.	B. coli.	Undiluted.	Diluted 1 in 2.	Diluted 1 in 5.
	hrs.						
1. 0·5 c.c. B. coli, 0·5 c.c. coli aggressin.	20	Polynuclear cells, 73%. No bacteria seen.	11	152	Complete hæmolysis.	Complete hæmolysis.	Complete hæmolysis.
2. 0·5 c.c. B. coli, 1·5 c.c. coli aggressin.	1	Eosinophils, 37%; endothelials, 34%; small lymphocytes, 23%. Bacteria scarce.	23	139	Incomplete hæmolysis.	—	—
3. 0·5 c.c. B. coli, 0·5 c.c. coli aggressin.	1	Polynuclears, 56·5%. No bacteria seen.	53	225	None.	None.	None.
4. 0·5 c.c. B. coli, 0·5 c.c. saline.	1	Small lymphocytes, 71%. No bacteria seen.	93	292	Complete hæmolysis.	Complete hæmolysis.	Complete hæmolysis.
5. 0·5 c.c. B. coli, 0·5 c.c. coli aggressin.	½	Eosinophils, 28%, of which 57% were phagocytic; endothelial cells, 38%. Bacilli numerous.	15	158	None.	None.	None.
6. 0·5 c.c. B. coli, 0·5 c.c. saline.	½	Small lymphocytes, 49·5%; eosinophils, 27%, of which 87% were phagocytic. Bacilli present.	10	141	"	"	"

ON CERTAIN METHODS EMPLOYED IN THE TREATMENT OF BACTERIAL INFECTIONS WHICH DIRECTLY CONCERN THE HUMAN SUBJECT.

All workers on the subject of aggressins are agreed that exudates formed within the animal body from bacterial infection need not necessarily be aggressive, and my investigations are in full agreement with these views. If exudates contain a *full supply* of active complement and opsonin they seldom contain much aggressin; in fact, the action of such exudates is usually in direct contrast to that of an aggressive fluid. It is especially in exudates derived from animals suffering from severe bacterial infection or dying from lesions of great severity that we must look for these so-called aggressins. This statement is supported by the experiments on human beings and animals conducted *in vitro*, and the numerous experiments with the body fluids of animals tested *in vivo*.

It has been mentioned already that rabbits injected with aggressive exudates develop a leucopenia and a fall in the number of polynuclears in the peripheral blood as an immediate result of the injection, so that at this period bacteria have a greater opportunity to develop the attack owing to this diminished resistance, but locally cells and body fluids rapidly accumulate in the infected area. In those cases in which an aggressive action is established the animals are much worse from the commencement of the illness, just at the time when the leucopenia is apparent, and although the body fluids are in evidence locally, there is no doubt that this leucopenia is the most noteworthy effect of an aggressive action. The local seat of infection may be rapidly exhausted by injecting aggressin with bacteria.

It can be shown both *in vitro* and *in vivo* that the action of aggressive exudates is not necessarily specific, as stated previously, and various exudates and blood sera may produce an aggressive effect apart from any question of specificity. Still further the aggressive action of certain foreign sera when injected into mice with the pneumococcus as described by Cole and Smirnow, and a similar effect recorded by Schlesinger when bile is injected with the typhoid or colon bacillus, are other examples of substances which may assist to overcome the defensive forces of an animal against bacterial action, quite apart from specificity. I was unable in my experiments to obtain sufficient evidence of the absence of a local leucocytic reaction in those animals inoculated with a bacillus and an aggressin, although this is referred to again and again by various writers on the subject; such an effect may be most marked in animals inoculated with bacteria alone, and it may be absent in the aggressin animals, while most important of all is, that if sufficient experiments are made a feeble leucocytic reaction occurs as often in animals inoculated with bacteria alone as those injected with both bacteria and aggressins. Thin fluid in abundance is probably of much greater use to an animal in the majority of cases than thick fluid in small amount. It would seem that an aggressive action may be explained as a common effect with a definite relation to anaphylaxis and also as a specific bacterial action. If "aggressive fluids" were only of academic interest, they would merely concern the laboratory worker, and have little or no importance in human pathology, but this is not so. Of recent years there has been much less inclination on the part of surgeons to resort to the active methods of treatment which previously were advocated. Dudgeon and Sargent[11] suggested from their investigations on the bacteriology of peritonitis that drastic treatment employed by many surgeons in cases of peritonitis with the idea of "washing away the infection" should be abandoned in the majority of bacterial infections of the peritoneum, as they believed from a study of this bacteriological question that limited treatment with as little interference of the infected regions as possible would give the best results. Clinical experience had already taught many surgeons that this view was correct, notably Murphy, before these investigations were completed or even commenced. There appears at the present day to be a strong tendency among surgeons of experience to do as little as necessary in acute bacterial processes because of the rapid spread of infection which has so often occurred from too great a desire to remove the source of infection. There is no greater advocate of "the less done the better" than the distinguished American surgeon, Murphy, of Chicago, and I can do no better than quote the contents of a letter which I received from him quite recently on his experience of the surgical treatment of bacterial infections: "I would say that in the diffuse or general suppurative peritonitis from perforations of the alimentary tract, pus tubes, or gall-bladder, it is my custom to find the opening through which the infection is admitted into the peritoneal cavity and close it. After this closure is made, I simply drain the peritoneum, without irrigation, without washing, and without sponging. My interpretation of the good results which I have obtained by this plan—now 71 consecutive cases with only two deaths—is that absorption and necrosis cease or only continue to a limited degree as soon as the *pus tension* is relieved. It is not necessary to wash out the pus, scrape the cavity, irrigate it, or irritate it. The results, however, are so uniformly good that it is my belief that no case of general suppurative peritonitis operated upon, except in the moribund stage, should die. We use this same method in all types of severe sepsis, whether located in the pleura, lung, bone, cellular tissue, or peritoneum, and we feel that it has greatly diminished the

[11] Leonard S. Dudgeon and P. W. G. Sargent: The Bacteriology of Peritonitis, Erasmus Wilson Lectures, Royal College of Surgeons of England, 1905, Constable, London.

mortality. In the streptococcic peritoneal infections, the relief of tension is not as important as in the other varieties, but 'blood washing'—i.e., the intravenous injections of saline—is more important, and these need to be repeated two or three times each 24 hours. Streptococcal infection often loses its virulence in a very short period of time, so it is merely a matter of overcoming hours of intense intoxication, until the patient is able to care for himself, through his constitutional resistance."

The contents of this letter are sufficient to show that experience has proved that active manipulation of infective tissue is much more likely to lead to the spread of infection than to produce any beneficial effect on the patient. There is little doubt to my mind that the numerous advantages ascribed to many methods of treatment which have been advocated at various times in acute bacterial infections can be explained on the grounds that limited treatment, as practised by Murphy, was adopted, and that the recovery was due to this factor and to the entire absence of "surgical activity." Much has been written of late on the subject of auto-inoculation, more especially in relation to the question of tuberculosis. It has always seemed to me that the subject has been dealt with in a rather one-sided way, as we are led to believe that graduated exercises must be practised with great care in cases of pulmonary tuberculosis, and that even the examination of the chest by a physician may cause a considerable alteration in the patient's "resistance," and, yet, those suffering from acute bacterial infections, especially of the peritoneum, may be subjected to surgical treatment far in excess of the most violent measure ever adopted in cases of pulmonary tuberculosis.

How the simple incision acts it is difficult to explain, but many surgeons consider that the effect is due to relief of tension. Watson Cheyne,[12] in 1888, appears to be a great advocate of the tension theory. He says: "Tension apparently has a considerable influence in causing inflammation and in predisposing to suppuration. The spread of an abscess after it has once completely formed is no doubt largely due to the tension of its contents, for the microscopical examination of the wall shows that the increase is not due, after a time, to the spread of the organisms in the tissues; and also if an abscess is opened aseptically and well drained, the secretion of pus ceases. The same is seen in the case of wounds, where, if micro-organisms are present, the occurrence of tension from accumulation of discharge is apt to be followed by suppuration, and where, on relief of the tension, the suppuration ceases."

Some surgeons apparently do not believe that relief of tension accounts for the improvements, as Murphy and others have suggested, in cases of peritonitis, although it may serve to explain the beneficial effect of an incision in inflammatory lesions of cellular tissue. It is probable that relief of tension is used to explain many phenomena, and that opinions on this question are not so widely divergent as might be supposed. Every effort which is made to relieve tension promotes a flow of blood plasma and cells to the infected region, even a mere incision, so that this factor in itself is one of considerable importance, and where limited surgical treatment is employed patients are allowed to gradually immunise themselves by the endotoxic substances present in the body fluids and by dead bacteria at the seat of infection. If violent efforts are practised a flow of blood and leucocytes to the part will undoubtedly occur, but the patient will receive an overwhelming dose of bacteria. To my mind, however, the most important fact of all is the escape of exudates which may suddenly accumulate in the blood stream, and quite apart from the powerful effect which they themselves are capable of producing, give a much more favourable opportunity for bacterial action. Pathological experiments and clinical experience are in direct agreement on this subject, as is shown by the opinion which has been expressed so forcibly by Murphy, and is summarised so concisely by Cuthbert Wallace.[13] He says: "My observations and experience have persuaded me that the surgeon can only remove the cause or rather the origin of the infection and leave the battle to be fought out within the closed abdomen. The two factors common in all modern treatment of perforative peritonitis are early operation and removal of the infective cause. I should submit that with the removal of the infecting source and the closure of the abdomen the surgeon's work is over." A few weeks ago a paper appeared in THE LANCET on the treatment of acute appendicitis by Sir George Beatson.[14] I am not qualified to criticise the extreme views which are expressed by him, but it is of interest to find that years of clinical experience have produced such profound respect for the protective forces of the peritoneum on the one hand and for the wide possibilities of infection on the other.

The experiments originally made by Issaeff in 1894, who showed that various sterile solutions injected intraperitoneally excited a certain degree of protection to bacterial infection, formed the basis of the investigation carried out by Salieri and Myake, which led von Mikulicz[15] to employ intraperitoneal injection of sterile saline and nucleic acid previous to abdominal operations.

Of recent years numerous papers have appeared on the use of leucocytic extracts for the treatment of infective processes. The various workers on this subject have obtained leucocytes from rabbits by injecting a suspension of aleuronat or Mellin's food in sterile saline into the serous sacs. The exudate is collected after some hours, centrifugalised, and the plasma removed in the usual way by washing in normal saline. The leucocytes are well broken up by force and emulsified in sterile water, and if found to be sterile the mixture is ready for inoculation purposes. Pettersson[16] showed that an injection of leucocytes into the same area, and simultaneously with anthrax bacilli, either delayed the infection or effected a cure. Hiss and Zinsser[17] and others obtained similar results by the employment of leucocytic extracts in the treatment of bacterial infections. Alexander[18] published in 1911 an interesting paper which deals very fully with the whole subject. He considers that these extracts act chiefly by inducing a leucocytosis, but from my experience the effect is similar to many other methods of treatment which have been advocated of recent years. I have already referred to numerous experiments which show that 15 minutes after the inoculation of living or dead bacteria, filtered exudates and blood serum, active opsonin and complement are to be found in the tissues at the seat of infection, together with a supply of the animal's body cells, while within one to two hours from the time of inoculation there is locally a supply of exudate equal in activity to the animal's blood serum, together with an abundance of active phagocytes. There is, therefore, from the very commencement of the illness a local and general stimulation of the cells and body fluids produced by various substances, of which nucleic acid, employed by von Mikulicz, is an excellent example.

These views would appear to be in agreement with the work of Hiss and Zinsser already referred to, as these observers advocated leucocytic extracts prepared in the usual way and also by freezing and thawing, and although they found that normal rabbits' leucocytic extracts have distinct bactericidal properties, yet quantitatively this action is insignificant as compared to normal serum, and all methods employed to prove the presence of complement in leucocytic extracts were negative, while immunisation of an animal did not increase the bactericidal power of the leucocytic substances. These negative results would suggest that the action of leucocytic extracts is as I have previously suggested. Bail and Weil[19] consider that leucocytes can prevent staphylococcal infections in rabbits if the cocci are injected into an area which already contains abundant leucocytes or by the simultaneous introduction of normal leucocytes and cocci. They consider that leucocytes act by inhibiting the action of the aggressin, and they point to suppuration as one of the ways in which nature prevents the spread of infection by means of a leucocytic reaction. This inhibitory effect of the leucocytes on the aggressin can be explained, in my opinion, however, much more simply: that the injection of leucocytes has produced an abundance of the animal's leucocytes and body fluids at the seat of infection and a peripheral leucocytosis.

[12] Watson Cheyne: Suppuration and Septic Disease, Hunterian Lectures, Royal College of Surgeons of England, 1888.
[13] Cuthbert Wallace: Abdominal Drainage in the Treatment of Peritonitis, THE LANCET, June 15th, 1912, p. 1603.
[14] Sir George Beatson: The Treatment of Acute Appendicitis: When and How to Operate, THE LANCET, May 11th, 1912, p. 1253.
[15] Von Mikulicz: Cavendish Lecture, THE LANCET, July 2nd, 1904, p. 1.
[16] Pettersson: Archiv für Hygiene, Band xliii.
[17] Hiss and Zinsser: Journal of Medical Research, February, 1908; February, 1909; June, 1910 (vol. xxii., No. 3).
[18] D. Moore Alexander: Brit. Med. Jour., Feb. 18th, 1911.
[19] Oscar Bail and Edmund Weil: On the Relationship between Rabbits' Leucocytes and Staphylococcal Poison, Wiener Klinische Wochenschrift, 1906, No. 27.

Attention must also be drawn to the work of various investigators (Opie, Müller and Jochmann, and others) on leucoprotease, which is a tryptic-like ferment in the polynuclear cells which acts best in faintly alkaline media. In 1910 Bradley,[20] working in Leathes's laboratories at the Lister Institute, examined 13 specimens of empyema pus, but came to the conclusion that the tryptic-like ferment which is present has a very weak action; and Opie[21] showed that serum from purulent exudates or blood serum inhibits the proteolytic effect of leucoprotease.

We now come to the treatment of acute bacterial infection by means of autogenous or isogenous serum. The subject of auto-serum-therapy has received attention chiefly on the continent and in America. In 1894 Gilbert, of Geneva, is said to have originally suggested this method of treatment in a case of pleurisy with effusion, and it has been especially in similar instances that the method has since been employed. Ivan Lemann,[22] of New Orleans, has dealt with the whole subject very fully, and reference must be made to his papers for a detailed account of it. Some physicians have claimed that good results have been obtained by injecting patients suffering from tuberculosis of the serous sacs with their own exudates, and have credited this result to the presence of tuberculin in the exudates. This method of treatment has also been employed in chronic renal disease so that the presence of bacterial products in the exudate is probably not sufficient to afford an adequate explanation of the "good results" which have been stated to occur.

Ivy Mackenzie and Martin[23] found that the serum of patients who had recovered from cerebro-spinal fever had a marked bactericidal effect on the meningococcus. Twenty cases were treated by intradural injection of fresh serum from patients who had recovered from cerebro-spinal fever, while in two instances the patients were injected with their own serum. The results were distinctly hopeful in the acute cases of this disease.

Others have advocated this method in various acute infective diseases, but obviously the practice of injecting serum obtained from one patient into another cannot be employed unless every possibility of infection has been removed, and the important question of iso-agglutination and iso-hæmolysis has been carefully considered. Wilkie[24] published an interesting paper on the treatment of peritonitis by the inoculation of the serum obtained from patients who had recently recovered from a peritoneal infection. He came to the conclusion from certain experimental observations on animals that previous heating of the serum at 57° C. for 30 minutes destroyed its active properties, and the inoculation of heated serum might produce a harmful effect. Serum-therapy in various cases of peritonitis in the human subject was combined with other methods usually employed. The blood was obtained from a vein in the usual way and was then incubated at 37° C. for a few hours; the serum which separated during this period was collected in a sterile syringe and injected intravenously into the patients suffering from peritonitis. The serum was never allowed to cool between the time of withdrawal from one patient and the injection of the other. The action of a serum in peritonitis would probably be largely antitoxic, as patients suffering from bacillus coli infections of the peritoneum seldom suffer from a colon septicæmia. The results which Wilkie obtained in his six cases were certainly encouraging and worthy of further study, more especially to ascertain how far these results were really due to the presence of specific substances in the serum. The method employed by Mackenzie and Martin, of injecting the serum by the intradural route, as the cerebro-spinal fluid is free from complement and is unable, therefore, to cope with a bacterial infection in the same way as a peritoneal or pleural exudate would react to the infection, should be remembered by those who employ this method in future cases. The injection of normal serum or the patient's own serum locally has much to recommend it, especially the autogenous serum, as the possibilities of infection can be easily removed, and the serum, besides containing active complement, would probably possess some acquired immunity, while the complications which so frequently arise from the injection of a foreign serum need not be considered, although the possibility of the autogenous serum containing aggressive substances must not be overlooked. This subject, however, requires careful investigation before it is widely employed in the treatment of infective processes.

In conclusion, I must apologise for the numerous omissions in the work which I have brought before you, although I sincerely hope I may have succeeded in drawing your attention to a few facts of interest and importance. I have also to offer my sincere thanks to Mr. Shattock, Dr. R. H. Aders Plimmer, and Dr. J. Mellanby for their advice and assistance on numerous occasions, and to various workers in my laboratories, more especially Mr. M. L. C. Irvine, of the Indian Medical Service, and Dr. W. W. C. Topley and Dr. R. C. Wingfield. To Dr. Barger, who not only carried out numerous investigations for me, but also placed his special knowledge of chemistry at my disposal, I am deeply grateful.

[20] C. H. Burton Bradley: Observations on Leucoprotease and Anti-leucoprotease, Journal of Hygiene, 1910, p. 209.
[21] Opie: Enzymes and Anti-enzymes of Inflammatory Exudates, Journal of Experimental Medicine, vol. vii., p. 316.
[22] Isaac Ivan Lemann: Auto-sera-therapy in the Treatment of Collections of Fluids in Serous Cavities, New Orleans Medical and Surgical Journal, vol. lxiii., November, 1910.
[23] Ivy Mackenzie and W. B. M. Martin: Serum-therapy in Cerebro-spinal Fever, Journal of Pathology and Bacteriology, vol. xii., 1908.
[24] D. P. D. Wilkie: Serum-therapy in Acute Peritoneal Infections, Journal of Pathology and Bacteriology, vol. xiv., October, 1909.

THE VASCULAR LESION IN SOME CASES OF MIDDLE MENINGEAL HÆMORRHAGE.

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NOT long ago I had occasion to re-investigate the detailed arrangement of the meningeal vessels of man in order to place upon a firmer footing the teaching which I, in common with some other anatomists, had adopted concerning the causation of the well-known grooves upon the cerebral surface of the ossa parietalia. Briefly, I had for some time assured myself, and constantly demonstrated to students, that these grooves were impressed on the bones, not so much by the arteria meningea media and its branches as by the interdural venous sinuses which course, for the most part, in company with the branches of the artery.

I was well aware that Professor Elliot Smith had long held these views concerning those cases, which are not at all uncommon among the peoples of South-Eastern Europe, in which these grooves are of an altogether abnormal development. Many contributions to the literature of the anatomical features of the ancient Egyptians made by him had very clearly demonstrated this fact. But in addition to this definite pronouncement, which dealt rather with the abnormal manifestations of the grooves, I discovered in my search among the older authors the very curious fact that until about 1700 it was the universal custom among anatomists to regard the normal grooves as lodging, and being caused by, the venous channels of the dura mater. The teaching that I had adopted, and which appeared rudely unorthodox to some surgeons, I found to be merely a reversion to the generally accepted anatomical beliefs of the older anatomists. I imagine that the cause which led the early anatomists to adopt this view was the same that had prompted my teaching, for my opinions concerning these channels were formed from the examination of the recent and uninjected vessels of the dura mater as seen in the ordinary course of a post-mortem examination.

It seems almost certain that the practice of injecting the arteries for the purpose of dissection led to the arteria meningea media being regarded as practically the sole vascular channel coursing over the dura mater and lodged within the grooves upon the cranial bones. As a matter of fact, the artery is but a small constituent of a much wider vascular channel, the bulk of which is composed of the meningeal venous sinuses. These sinuses are mere clefts in the thickness of the dura mater which are lined with endothelium and contain venous blood, and which are exactly analogous to all the other well-recognised intracranial venous sinuses. From an anatomical point of view these facts have been discussed in a previous paper[1]; and sections

[1] Journal of Anatomy and Physiology, vol. xlvi., p. 228, April, 1912.

taken through the dura mater of an adult (see Figs. 4, 11, 15, and 17), or through the whole thickness of the cranial wall in a fœtus (see Figs. 1 and 2), will easily demonstrate the actual state of the vascular channels of the dura mater. In such sections the artery is seen as a small channel situated either within a venous sinus or running between two venous sinuses. The pure anatomy of the question need, therefore, be no further discussed here.

In the course of the investigation of the anatomical condition of the vascular channels it very naturally occurred to me that, in the event of any violence being directed to the cranial wall, these venous sinuses would probably be far more exposed to injury than the comparatively protected and highly elastic artery. I noted that it was quite impossible to cause any extensive separation of the dura mater from the bone without some degree of laceration of the venous sinuses, while in this process the artery remained uninjured. Further, I inflicted injuries upon the skull and noticed that in fractures so made I could easily demonstrate a tear of the sinus wall at the site of fracture, but could not detect any arterial lesion. I therefore suggested, in a very tentative way, in the paper already referred to, that cranial injuries causing extradural hæmorrhage might, in some cases, prove to be due to venous rather than arterial injury—i.e., that middle meningeal hæmorrhage might take place from the sinus and not from the arteria meningea media or its branches. Since completing the anatomical work in connexion with this question I have had the opportunity (owing to the kindness of Dr. C. R. Box) of examining three cases of cranial injury in which death resulted from middle meningeal hæmorrhage. Each case was submitted to a careful examination for the gross lesion, and afterwards the whole of the dura mater was removed in order that every hæmorrhagic point could be cut into serial sections for microscopic examination. In each of these cases the only demonstrable lesion has occurred in the cranial wall of the venous sinus, which runs approximately with the branches of the arteria meningea media. No arterial lesion could be found by injecting the arterial trunk, by careful inspection, or by the examination of a very large number of serial sections; indeed, in serial sections the integrity of even the most minute arterial twigs was one of the most striking features. I am well aware that each one of these cases may be exceptional, and that in any event but little may be argued from the examination of the bleeding points (though they may be multiple) of only three cases of traumatic extradural hæmorrhage; but I think that these three cases may be suggestive, and may possibly lead to a more critical study of the vessels of the dura mater in the post-mortem examination of cases of this nature. For this reason, and because the anatomist has but rare opportunities for the examination of these injuries, the findings, based on an altogether insufficient experience, are published.

For permission to publish the details concerning two of the cases I am indebted to Mr. G. H. Makins, under whose care at St. Thomas's Hospital Cases 1 and 2 were admitted; the other case (Case 3) was one of which Mr. C. A. Ballance had charge in his wards, and to him I am indebted for a like permission to use and publish the clinical notes.

CASE 1.—An adult man of unknown age was knocked down in the street by a motor omnibus, and was taken to hospital on the morning of Dec. 12th, 1911. He was quite unconscious when admitted, and a wound was present on the occipital region; the pupils were contracted, the temperature was 97° F., and the pulse was 50. All the reflexes were very sluggish, and both urine and fæces were passed involuntarily. By night-time his temperature was 106° and his pulse was 130. By the morning of the 13th the temperature fell to 102°, but it rose again in the evening to 108°, and in the night the patient died without ever regaining consciousness.

Post mortem, the right side of the brain was found to be extensively bruised, and some hæmorrhage had occurred from the cortical vessels; in addition to this there was extradural hæmorrhage over the anterior division of the arteria meningea media above the right pterion.

This case was therefore probably not an example of simple middle meningeal hæmorrhage, for the damage done to the brain tissue and the arteries of the brain was very considerable. But as a part of the injury there was definite extradural hæmorrhage which would ordinarily be considered as a middle meningeal hæmorrhage. All these extradural clots were removed with the dura mater, and sections were cut of the whole series. In every instance the lesion was confined to the venous sinus, and from it the whole of the extradural clot had been extruded. The actual sections of the bleeding points are shown at Figs. 4, 5, 6, and 7, and note that in these and all the other sections figured the cranial aspect of the dura mater is uppermost. In addition to the sections figured there were a great many which demonstrated a condition seen in some portion of the vascular channel of all cases—i.e., an escape of blood from the actual sinus into the thickness of the dura mater. In some portion of all the sites of injury examined this condition was seen: in some the blood merely extended into the thickness of the membrane from a rupture of the wall of the sinus, and in some, after infiltrating the dura mater, the blood found an escape by rupturing the cranial aspect of the membrane, the rupture taking place in several cases at some distance from the site of the lesion in the sinus wall. This condition—a hæmatoma of the dura mater—was met with in many bleeding points in all three cases; in some instances the hæmatoma had ruptured the cranial aspect of the dura mater, and in some it had remained confined within the thickness of the membrane. This "hæmatoma of the dura mater" is probably a condition of some importance, and further reference will have to be made to it.

CASE 2.—A labouring man, aged 78 years, fell from a ladder and struck his head. The fall was no more than 9 feet, and the man was fully conscious when assisted to rise. He was taken to hospital, where he was admitted three-quarters of an hour after the receipt of injury; he was then quite unconscious. Consciousness was never recovered and the patient died the same evening, Dec. 18th, 1911.

Post mortem, the skull was remarkably thin even for a man of his age; it presented in a striking degree of perfection the condition of extreme thinning over the upper and back parts of the parietal bones. The grooves for the meningeal sinuses were very well marked and the skull at the bottom of the grooves consisted of a mere shell of bone so thin as to be perfectly translucent when the calvaria was held up to the light. The fractures of the skull were multiple, and on the right side a line of fracture traversed the thin bone of the meningeal groove. The dura mater on this side was stripped from the bone over a wide area and a large extradural clot was present beneath the greater part of the right parietal bone. The detached dura mater was removed with care, and in the sections prepared from it no lesion of the arterial branches was discovered, but the venous sinuses were laid entirely open by rupture of their cranial walls. (See Fig. 8.)

CASE 3.—A labouring man, aged 54 years, was hit on the right side of his head by a travelling crane on the morning of Dec. 7th, 1911. The man was rendered unconscious by the blow, but on admission to hospital consciousness had returned. It was found that upon the right side a fracture had involved both the frontal and parietal bones. At 4.30 in the afternoon the patient became unconscious, and a rigidity of the whole body set in. The skull was trephined and bone was removed freely. Some extradural hæmorrhage was found, and clots of blood were taken away; a plug was put in over the sinus sagittalis superior, and a drain was inserted at the lower part of the wound. The patient, however, never regained consciousness; he became completely incontinent, his breathing was stertorous, and he died at 11.30 P.M. next day.

Post mortem, clot was found in many places between the dura mater and the bones of the vault and right side of the skull. One large clot was firmly adherent to the dura mater over the site of the anterior branch of the arteria meningea media, but all attempts to demonstrate a lesion of the artery produced negative results. The dura mater was removed from the skull with great care, and a fine cannula was passed into the cut end of the arteria meningea media, which was then injected with a coloured solution. The injection flowed freely, but no leak was detected upon any branch of the artery so injected. A similar cannula was then inserted into the meningeal venous sinus, and injected fluid and air were at once seen to escape through a definite crater in the midst of the blood clot. It was thought best to preserve this, the main bleeding point, and bristles were accordingly passed into the artery and into the sinus (the latter bristle emerged through the wounded wall and appeared on the surface of the clot), and the entire specimen was lodged in the Museum of the Royal College of Surgeons. In addition to this main lesion, other bleeding points were marked out by adherent blood clots upon the cranial aspect of the dura mater. These bleeding points were reserved for microscopical examination, and micro-photographs of the sections so obtained are reproduced at Figs. 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18. In every case serial sections were cut through the whole length of the vascular channels involved, and for the purpose of clearness I have reproduced, wherever possible, the uninjured and the injured condition of the vessels.

From these three cases a dozen bleeding points have been examined in serial section under the microscope; the most careful search of a considerable stretch of dura mater on either side of the actual bleeding point failed to reveal any lesion of the artery, and in every instance the sinus was found to be opened on its cranial aspect at the point from which the hæmorrhage actually took place. There seems to be no doubt that the middle meningeal hæmorrhage in the 12 extradural hæmorrhages of these three cases was uniformly venous and was caused by a laceration of the cranial wall of the meningeal venous sinuses. How far this is the normal condition of things in cases of middle meningeal hæmorrhage a more extended examination of fatal injuries can alone decide.

Turning to the published records of fatal cases there are some points which seem to me to be of interest in this connexion. Records of actual bleeding points do not always carry conviction to me, for I am sure that the venous sinus is so commonly overlooked anatomically that it must be

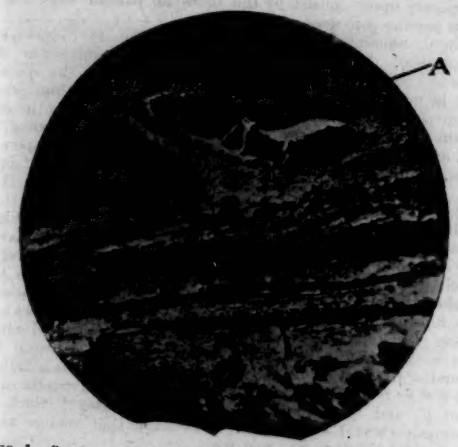

FIG. 1.—Section of the cranial wall of a fœtus of 4½ months, showing the arteria meningea (A) lying upon the deep surface of a far larger venous sinus. × 40.

FIG. 2.—Section of the cranial wall of a fœtus of 6 months, showing the arteria meningea media (A) lying between two venous sinuses (v.s.). × 40.

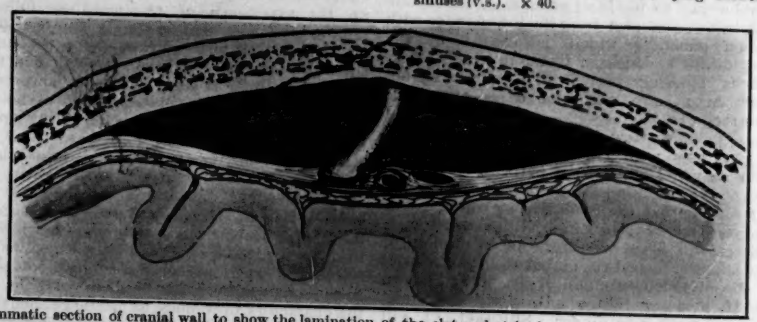

FIG. 3.—Diagrammatic section of cranial wall to show the lamination of the clot and stripping of the dura mater from bone after injury of the sinus wall.

FIG. 4.—Section of dura mater. Case 1. Artery and sinuses intact. × 40.

FIG. 7.—Section of dura mater. Case 1. Note sinuses opened but artery intact. × 40.

FIG. 5.—Section of dura mater. Case 1. Left sinus opened, artery intact. × 40.

FIG. 6.—Section of dura mater. Case 1. Right sinus opened; note integrity of small branch of artery. × 40.

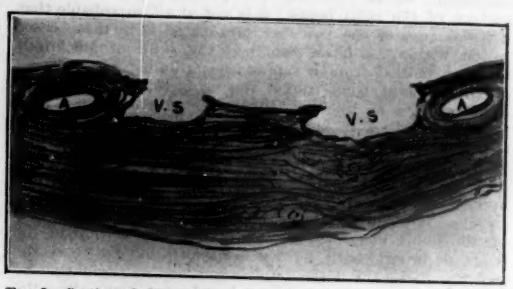

FIG. 8.—Section of dura mater. Case 2. Showing arterial branches intact and venous sinuses torn open. (Drawing of a typical section.)

extremely likely that it is mistaken for the artery in the course of some post-mortem examinations. The classical paper by Mr. W. H. A. Jacobson[2] gives an analysis of the site of the vascular lesion, but there is no clue as to what method was used to determine the site of bleeding in the "one or two cases" in which the bleeding point could *not* be found after death. Jacobson says that "in the great majority of cases it is possible, by the aid of a bristle, or a fine wire, or by injecting water along the common carotid, to prove the existence of a laceration in the middle meningeal artery or one of its branches, and to detect its exact site." The method of injecting water into the common carotid is, of course, quite conclusive that the lesion is arterial, but so far I know no published records of post-mortem examinations in which this method was uniformly used, and Jacobson does not tell us how often it was adopted in his series, or if it was used in the particular "one or two" cases in which no lesion was found.

Concerning the extradural clot Jacobson says that it "is nearly always dark, usually black, this being perhaps due to the facts that the accompanying veins are opened as well as the artery, that as soon as compression takes place both the arterial and the venous currents are interfered with, but with different results, the former being gradually diminished until the clot is removed, when it may break out again, but the venous blood continuing to escape as the dura mater becomes loaded with blood owing to the local pressure on the middle meningeal veins below, and also from the interference with venous circulation generally which is caused by the embarrassed respiration." Jacobson therefore clearly recognised that venous bleeding played a definite and not unimportant part in at any rate some cases of middle meningeal hæmorrhage.

From a clinical point of view, two facts stand out very clearly in the pictures so wonderfully drawn by Jacobson of the cases which he reviews; the first is that a very trivial injury may produce fatal middle meningeal hæmorrhage in a child; and the second that the hæmorrhage which causes death may come on not infrequently in conditions of lowered, and not raised, cerebral blood pressure. As an example of both these facts take the second case tabulated by Jacobson. The case was one of Erichsen's, and I give it in his own words. "Case II. Some years ago a little girl was going downstairs with her mother to dinner. She said, 'I will go first, mamma,' and started to run downstairs, but she missed her footing and fell forwards, striking her head slightly against the wall. She felt a little dazed at the time, but went to her dinner, ate, and afterwards felt slightly sick. She was sent to bed, slept soundly, and was dead next morning. There was a clot found between the dura mater and the skull on the side of the head that had been struck, but without any fracture." I have had no opportunity of examining such a case as this, but I should think that here there is every indication that the bleeding was venous, and I imagine the formation of the clot as being strictly comparable to those familiar and easily raised "bumps"—the cranial hæmatomata of childhood. In childhood, when the pericranium and the dura mater are active periosteal membranes which carry abundant vessels for the nourishment of the growing skull bones, it is probable that hæmatomata are easily caused both within and without the cranial cavity. A child that knocks its head almost invariably raises a hæmatoma of its vascular pericranium upon the outer surface of the skull bones; it is not at all improbable that a hæmatoma of the vascular dura mater is in these cases raised within. I have examined the skull of an infant which had died from a suppurating traumatic hæmatoma of the parietal bone caused during birth, and upon the inner surface of the parietal bone, corresponding with the hæmatoma without, was an area over which a multitude of abnormal and dilated venous channels coursed. I imagine that in such a case the original hæmatoma of the dura mater was a small one and to a great extent had disappeared before the child died from sepsis, but that a hypervascular area was left behind on the inner surface of the skull bones. It is notable that in several of the cases described both by Erichsen and by Jacobson the violence that caused the fatal injury was so slight that no concussion symptoms were produced, but that after the temporary upset caused by the blow the patient slept and, sleep passing into deep coma, died.

There remains one other point of the very greatest importance. It is quite obvious, in the long series of recorded cases, that the bleeding encountered at the operation is not, as a rule, severe. That the "coagulum was removed," "darked blood welled up," "blood continued to ooze," "the artery did not bleed after it was exposed," &c., are typical descriptions taken from accounts of operations. Many cases in Jacobson's series illustrate this fact, and one of Erichsen's cases is described as follows: "At first a very free hæmorrhage occurred from the inside of the skull; the blood welling up, no artery could be seen or felt. Compression of the common carotid did not appear to have any effect on the hæmorrhage, which after a time got very much less." It would seem that this fact was enough to awaken the suspicion that the bleeding was in reality venous, but in addition to this Erichsen in the same paper[3] goes on to say: "There is a very curious condition connected with this middle meningeal artery, and it is this: when it is wounded in such a place, and is exposed, it bleeds a little, but it does not bleed *per saltum*; the blood merely wells out from it, and the hæmorrhage very soon ceases." Such a description would surely seem to indicate that venous and not arterial bleeding was met with.

Again, no very rigid hæmostatic methods seem to be employed in the great bulk of cases, and Erichsen summed up his experience of treatment as follows: "Having removed the clot, what do you do with the middle meningeal artery? If it is torn you cannot stop the hæmorrhage, and there is no necessity to do so: you will find the hæmorrhage cease of itself." It must be owned, however, that there are some cases in which this dictum does not hold true, for bleeding may at times be severe during operations undertaken to relieve pressure. In Case 64 of Jacobson, Mr. Howse could only arrest the severe hæmorrhage by ligation of the external carotid artery—proof positive that the source of the bleeding was arterial in this case. The common carotid has also been ligatured with success in arresting meningeal hæmorrhage. But cases in which it is necessary to resort to arterial ligation are the exception rather than the rule. The experience of the surgeon would therefore seem to show that in the great bulk of cases the bleeding has all the characters of venous hæmorrhage, but that in some few instances it appears to be almost certainly arterial.

With regard to the evidence afforded by the actual clot, we have seen that Jacobson noted its dark colour and its general resemblance to a venous clot; the same point was also noted by Erichsen. Some difference of opinion has been expressed as to the exact formation of this clot, for Charles Bell apparently demonstrated that a separation of dura mater from the bone was the actual result of the blow, and that the bleeding into the space so caused was a secondary affair. The evidence afforded by my sections would seem to show that the main stripping of the dura mater from the bone is caused by the exudation of blood between the dura and the bone, whilst the initial trauma accounts for the rupture of the dura mater which forms the cranial wall of the sinus. A fracture line may traverse the sinus wall, or a blow may lead to an injury of the thin cranial wall of the sinus without producing any fracture. In either event blood is extravasated from the sinus, and it tunnels between the dura and the bone, often after it has tunnelled some distance in the actual thickness of the dura. As it is exuded into the extradural space it causes a further stripping of the membrane from the bone, and so the clot becomes laminated as successive layers of coagulating blood are accumulated in an ever-widening space. This lamination is well seen in many sections, and opposite the actual bleeding point all the laminæ are penetrated by a still open channel through which new layers of blood are being poured out from the wounded vessel. The method of the formation of the clot and of the stripping of the dura mater from the bone would seem to be very clearly demonstrated in these sections, and the condition is illustrated at Fig. 3, which shows a section through the clot at the level of the bleeding point.

Summary.—The conclusions arrived at from this preliminary, and insufficient, study of the vascular lesion in cases of middle meningeal hæmorrhage are easily tabulated.

[2] Guy's Hospital Reports, vol. xliii., p. 148.

[3] THE LANCET, 1878, vol. i., p. 2.

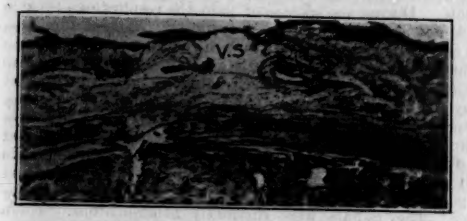

FIG. 9.—Section of dura mater. Case 3. The sinus to the left of the artery is injured. × 40.

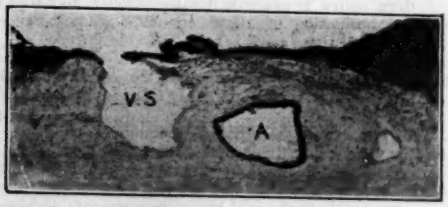

FIG. 14.—Section of dura mater and clot. Case 3. The venous sinus is opened. Small sinus to the right of the artery uninjured. × 40.

FIG. 10.—Section of dura mater. Case 3. The sinus to the right of the artery is injured. × 40.

FIG. 15.—Section of dura mater and clot. Case 3. The artery and venous sinus are uninjured. × 40.

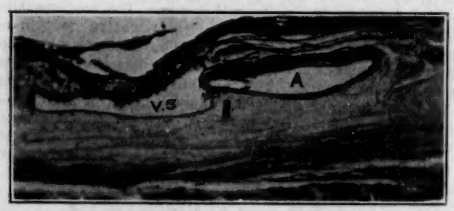

FIG. 11.—Section of dura mater. Case 3. Artery and venous sinus intact. × 40.

FIG. 16.—Section of dura mater and clot. Case 3. The artery is uninjured, but the sinus is freely opened into the clot. × 40.

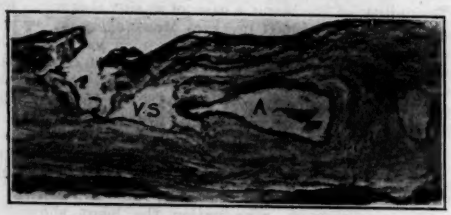

FIG. 12.—Section of dura mater. Case 3. The venous sinus to the left of the artery is ruptured. × 40.

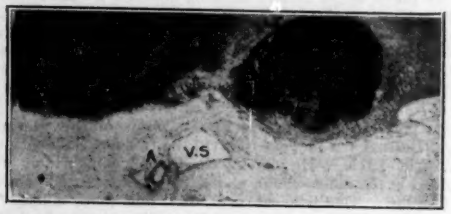

FIG. 17.—Section of dura mater and clot. Case 3 Artery and sinus intact. × 40

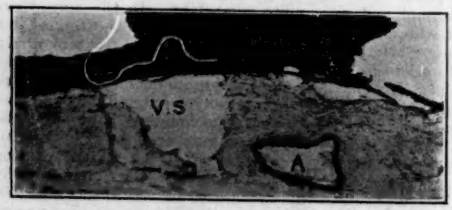

FIG. 13.—Section of dura mater and clot. Case 3. The venous sinus has its cranial wall composed of clot alone. × 40.

FIG. 18.—Section of dura mater and clot. Case 3. Sinus is opened and blood is issuing from it into the clot. × 40.

1. That the anatomical condition of the vascular channels of the dura mater is as a rule not appreciated, and that an attentive examination of these channels at post-mortem inquiries held on these cases is very desirable.

2. That from a purely anatomical point of view there is great probability that, in cases not caused by excessive violence, the sinus is far more likely to be injured than the artery.

3. That in those cases—especially common in children—in which the violence is trivial, and no fracture is caused, the cerebral compression and ensuing death are due to the development of a hæmatoma beneath the vascular dura mater strictly comparable to the well-known hæmatomata developed beneath the vascular pericranium.

4. That in the 12 bleeding points yielded by three fatal cases which have been examined in serial sections, the blood had invariably escaped from a laceration of the venous sinus, and that in no instance could an arterial lesion be found.

5. That from the published accounts of the bleeding encountered at operations undertaken for the relief of symptoms it would seem that in the majority of such cases the blood was issuing from a ruptured venous sinus rather than from the artery.

6. That in the cases examined there is evidence that following upon the initial wound of the sinus wall venous blood is extravasated between the dura mater and the bone, and that continuance of the bleeding causes a continuance of the stripping of the membrane from the bone with the development of an accumulating laminated extradural clot.

7. That probably only in rare cases—and especially those in which excessive violence has produced linear or depressed fractures—is the middle meningeal artery actually wounded.

8. That dangerous, or difficultly controlled, hæmorrhage is not the rule at operations undertaken for the relief of this condition; that in children especially any cranial injury, however trivial, should be regarded as the possible causation of a dangerous, and possibly fatal, dural hæmatoma, and that operation for evacuation of the clot and relief of pressure symptoms should always be undertaken regardless of subsequent hæmorrhage, which, being usually venous, is easily brought under control.

NOTE ON A CASE OF ANGINA ABDOMINIS.

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THE paper by Sir Lauder Brunton and Mr. W. E. Williams in THE LANCET of April 6th, 1912, describing a patient with angina abdominis, has recalled to my memory a case that was under my care last autumn. The patient was a man suffering from a somewhat similar pain, and as he ultimately died and a post-mortem examination was held it seems to me of sufficient interest to be put on record.

The patient, aged 56, was in my wards of the Glasgow Royal Infirmary from Sept. 6th till the time of his death on Oct. 7th, 1911. He first noticed the pain, which was situated in the epigastrium, about 18 months before coming to hospital. The pain at first was dull and aching in character, usually coming on about an hour after food and most often relieved by the taking of food. It was frequently associated with some flatulence, but there was no vomiting. Shortly before admission the pain had altered its characters, being now sharp and shooting, and coming on in a series of very frequent paroxysms which had no relationship to the taking of food. The patient had been gradually getting thinner, having lost over a stone in weight in the previous 12 months. For 18 months there had been slight jaundice, but there was no history of alcoholism or of syphilis. The patient's previous health had always been good. His mother was alive and well; his father had died suddenly from a "shock." Six brothers and sisters were alive and well.

On examination the patient was seen to lie in bed in the semi-recumbent position. He was very restless, and there was a good deal of dyspnœa, the breathing being at times of the Cheyne-Stokes character. There was a slight jaundice tint of the skin and conjunctivæ. The pain in the epigastrium was more or less constant, and there were frequent and severe exacerbations, each paroxysm lasting about one minute. During the spasms of pain the respirations became quickened and the face rather cyanosed. The cardiac area was not increased in extent, though there seemed to be some slight increase in the manubrial dulness. The cardiac rhythm showed considerable irregularity, and the type of arrhythmia seemed to vary from time to time. Sometimes it was trigeminal, at other times there would be a systole entirely left out, and as a rule the various systoles seemed to differ a good deal in length. The heart sounds both at the apex and at the base were indistinct and of poor quality; there was, however, no murmur to be heard. The radials were distinctly atheromatous. There were signs of hypostasis at the bases of both lungs. The abdomen was rather tense, but there was no ascites. The liver was enlarged, being palpable in the nipple line an inch below the costal margin. In the region of the gall-bladder there seemed to be an ill-defined tumour mass, but it could not be determined whether this was due to hepatic enlargement or to a neoplasm of the gall-bladder. The spleen was not made out to be enlarged, neither was the stomach. The feet and legs were œdematous. The urine had a specific gravity of 1022 and contained about 0·1 per cent. of albumin. There was a trace of bile, but no blood, pus, or sugar. Granular and hyaline casts were found in the deposit. The motions were quite normal in appearance.

During the month the patient was under observation he had paroxysms of pain nearly every day. The pain was always referred to the epigastrium, and the paroxysms would come on about every 15 to 20 minutes and last about one minute. This would go on for an hour or a hour and a half at a time. The paroxysms of pain were very severe, and at one time it was thought that the patient was suffering from hepatic colic. The spasms of pain, however, seemed to be too frequent and to have been occurring over too long a period of time to be due to gall-stones. The motions, too, were carefully examined, but with negative results as regards the finding of gall-stones. The motions as a rule were rather paler than normal, but otherwise they were natural in appearance. The amount of urine passed in the 24 hours ranged about 30 ounces, and the amount of albumin from 0·05 to 0·1 per cent. There was constantly a trace of bile in the urine, but the jaundice colour of the skin did not increase, but rather lessened in intensity. The appetite was very poor, and it was with difficulty the patient could be induced to take an adequate amount of nourishment. He often complained of a feeling of sickness, but he never vomited more than a very few ounces of a greenish-looking fluid.

The signs of myocardial failure persisted, and, indeed, gradually became more marked. But it was difficult to associate the epigastric pain with the cardiac condition. The possibility of its being a case of angina abdominis was considered and the blood pressure was taken on several occasions during the paroxysms of pain as well as in the intervals in between, but the pressure was unaffected by the pain. During the time the patient was in hospital the systolic blood pressure ranged from 150 to 155 mm. Hg, except for a day or two just before death, when it fell to 115 mm. Hg. The pain ultimately became so severe and the patient so noisy and restless that it was necessary to keep him more or less under the influence of morphia. He died at last with all the signs of cardiac failure.

At the post-mortem examination the heart showed a certain amount of hypertrophy as well as dilatation. The outer two-thirds of the myocardium appeared dark and congested, the inner third was pale but not mottled. There were globular thrombi near the apex of both right and left ventricles. The valve segments were little altered from the normal and were quite competent. In the aorta there was a widespread patchy atheroma, which also extended into the larger arteries. The coronary arteries likewise presented a patchy sclerosis, which was much more marked in the posterior coronary. In this vessel there was quite definite calcification. The lungs as a whole were intensely congested. At the base of the left there were some pneumonic areas of consolidation. In the right there were a number of large infarctions of various ages, but mostly recent. The emboli causing these were firm and doubtless came from the right ventricle. The liver was considerably enlarged and there was a certain amount of old perihepatitis, there being loose fibrous adhesions between the liver and the diaphragm. There

was, however, no material thickening of the capsule of the liver. On section the liver presented the appearances of a pronounced passive congestion. The gall-bladder and bile-ducts were quite normal; neither was there any appearance of abnormality in the pancreas. The kidney and spleen showed marked venous congestion and the vessels of the kidneys were unduly prominent. The stomach was also greatly congested, and scattered over its surface were a considerable number of small hæmorrhagic ulcers, as well as some flat cicatrices of a similar size. The hæmorrhages each measured about one-eighth to a quarter of an inch in diameter. There was nothing of note in the intestines.

Portions of the heart, aorta, liver, and kidneys were examined histologically, but nothing of special note was to be found. In the heart muscle there was a certain amount of fatty infiltration, and the muscle cells seemed swollen and unduly separated from each other. The aorta presented a well-marked atheroma of the ordinary patchy (senile) type and marked thickening and degeneration of the intima. In the liver there was congestion of the vessels, especially of the hepatic area, and considerable fatty degeneration at the periphery of the lobules. In the kidneys there was congestion as well as a tubular nephritis; their vessels were definitely sclerosed.

This case, then, was one of cardiac failure due to myocardial inefficiency, the inefficiency being apparently the result of narrowing of the coronary arteries. It is in such cases that angina pectoris is to be met with. And the case corresponds very closely both in its clinical as well as in its pathological aspect to those described by Huchard under the phrase "angine à forme pseudo-gastralgique." As in these cases, so in my patient, nothing was found in the epigastrium at the necropsy that would readily explain the severe and paroxysmal pain he suffered from. The slight amount of perihepatitis would not cause the pain, and there was no disease of the gall-bladder or bile-ducts, nor yet of the pancreas, with which the pain could be associated. The hæmorrhages into the gastric mucous membrane I take to be venous in origin and simply a phase of the marked passive congestion of which most of the internal organs showed undoubted evidence. I have no proof that the hæmorrhages were not associated with occlusion of minute arteries, but in the presence of the marked congestion of the liver and other abdominal organs the former view seems to me the more likely one. But whatever be the cause of these hæmorrhages it is very doubtful if their presence will explain the paroxysms of pain. The ordinary perforating gastric ulcer seems to be the nearest analogy that one can find to these hæmorrhagic ulcers, but I have never seen any case of gastric ulcer with pain of the severity and of such long duration as that complained of in this case, for his pain had quite the characters of the pain in true angina pectoris. The pain, too, seemed to have no relationship to food. Further, Dr. A. F. Hertz has shown [1] that a gastric ulcer, like the normal gastric mucous membrane, is quite insensitive to painful stimuli, and that gastric pain, even when associated with ulceration, is not due to irritation of sensory fibres in the mucous membrane, but to a sudden tension of the gastric muscle fibres, such as is met with in a very active peristalsis. If, therefore, the origin of the pain in angina abdominis is to be sought for in the stomach itself, one must think of it as being due to spasmodic contraction in the muscle fibre of the stomach wall.

Now at the present time there seems to be a tendency [2] to explain angina abdominis as being due to some fault in the arterial supply of the stomach wall, and to discard the older view that it is a referred pain originating in the heart muscle or in the ring of the aorta. The pain in the epigastrium is thus thought to be analogous to the pain in intermittent claudication, and in favour of this it is pointed out that in a proportion of the cases—as, for example, that of Sir Lauder Brunton and Mr. Williams, the pain was induced by a muscular effort of some sort. But if the analogy is to be complete one must take for granted an increased activity in the movements of the stomach wall, and it is by no means obvious why increased exercise of the skeletal muscles should induce increased movement of the gastric muscle. Exercise of the skeletal muscles no doubt raises blood pressure, which in turn probably means a vaso-constriction in the splanchnic area, and by narrowing the already arterio-sclerotic gastric vessels would produce a comparative ischæmia of the stomach wall. But it is difficult to understand that such an ischæmia would cause any considerable disturbance unless the stomach at the time were undergoing active peristaltic movement, as, for instance, during the process of digestion. In the case I have recorded, however, the pain came on quite independent of muscular exercise, without rise of blood pressure and with no definite relationship to the taking of food. Unless, therefore, one presupposes an increased peristalsis it is difficult to explain the pain of angina abdominis as originating in the stomach. Increased peristalsis, like muscle exercise, doubtless requires a greater blood-supply for the contracting muscle, and if owing to narrowing of the gastric vessels this supply of blood is limited, then we say we have the conditions necessary for the cramp-like pains of claudication or of angina pectoris. It is unfortunate that amyl nitrite was not given to my patient during the paroxysms of pain, for it would have been of interest to observe the result. But the fact that the blood pressure remained unchanged almost throughout the illness was against the view of the pain having a vaso-motor origin. Diuretin was administered in 20-grain doses for a period of two weeks without any apparent benefit and with no relief to the pain.

The explanation of angina abdominis as being due to an ischæmia of one or other of the abdominal viscera does not seem to me to be an entirely satisfactory one, even if we accept the theory that angina pectoris is due to an ischæmia of the heart muscle. And if we favour Sir Clifford Allbutt's contention that, in a large proportion of cases, it is caused by a painful distension of an aorta which is the seat of an inflammatory lesion, the ischæmic theory for angina abdominis would seem to fall to the ground.

In concluding, I wish to acknowledge the kindness of Professor J. H. Teacher in giving me access to the post-mortem room journals, from which the account of the necropsy in this case was abstracted.

Glasgow.

[1] The Goulstonian Lectures, THE LANCET, April 22nd and 29th, and May 6th, 1911.

[2] See, for example, Osler and McCrae's System of Medicine, vol. iv.,

THE OPHTHALMOLOGY OF GENERAL PRACTICE.

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MANY general practitioners would prefer to separate the two departments mentioned in my title, while others claim that there is no branch of ophthalmology with which they are not competent to deal after a few months' experience at an ophthalmic hospital. It is better to aim at an intermediate course, and a certain amount of knowledge of the subject is indispensable in private practice, since unfortunately the family medical man is expected to be thoroughly acquainted with the diseases of every part of the body, including all the special departments. How difficult a standard this is to attain the best general practitioners know only too well, yet in many districts they are compelled to make the attempt.

Ophthalmology is such a specialised branch and so totally different from any other in medicine and surgery that the everyday experience gained in the latter subjects is of no use in the diagnosis and treatment of diseases of the eye. The general practitioner may have had no opportunity for special study at any ophthalmic hospital, and without it the perusal of ophthalmic literature often only serves to mystify rather than enlighten him. Ophthalmology, perhaps more than any other subject, requires plenty of time and a large amount of clinical material to render one efficient and (which is so essential in the life of most busy general practitioners) quick in diagnosis; and thus it happens that, starting with the best intentions, they get tired of the subject and prefer not to have the trouble of ophthalmic practice. It is when either an urgent or a very ordinary case presents itself that we want proper principles to guide us in making a diagnosis and initiating a line of treatment. When once a diagnosis is made and a course of treatment embarked on, variations in the latter can be gathered from any text-book, so that I

have purposely refrained from any elaboration in this direction.

Although there may be exceptions applicable to special circumstances, I will say at once that, speaking from my own personal experience as a general practitioner, I exclude the greater part of refraction work, all detailed ophthalmoscopic examination, and all but a few operations on the eyeball and its appendages. My reasons for commencing with this somewhat surprising statement will be dealt with more fully under the respective headings, but in passing I may say that attention to these details seldom pays commercially or affords any compensating interest from a scientific point of view. The large amount of experience and clinical material necessary for obtaining proficiency in these three departments is practically impossible in any class of general practice, where the supply of cases is so irregular, so that the time and trouble expended is quite out of proportion to either the fee received or the amount of satisfaction afforded.

From the general practitioner's point of view, diseases of the eye may be divided into two groups: (1) External diseases, or defects which show some visible external signs; and (2) defects of sight, or diseases which show no visible external signs. These may be subdivided into: (*a*) Refractive errors, and (*b*) intra-ocular disease, or both.

External Diseases.

Conjunctiva.—The general practitioner is expected to cure conjunctivitis, and in order to treat it effectually he must recognise one or two different types. The commonest form is where the whole eye is intensely injected, accompanied by a profuse mucopurulent discharge; this causes the lids to become glued together in the morning, which is one of the leading symptoms of this variety. Unless the cornea is secondarily affected there is no photophobia, and the ordinary methods of cleanliness will in the course of a week or two bring about a cure. It is, however, advisable to use a lotion, either boric acid (gr. x. to ℥ i.) or perchloride of mercury (1 in 5000), for washing out the eyes three times a day and to apply some boric ointment or vaseline along the edge of the lids at night to prevent them from sticking. I have frequently noticed that many practitioners in treating conjunctivitis omit to prescribe the ointment, whereas I think it is perhaps the most important part of the treatment. Whatever we apply to the eyes during the day, if the lids are closed at night for several hours the organism remaining in the conjunctival sac will grow more quickly under such favourable conditions and continue to reinfect the conjunctiva each day, thus keeping up the inflammatory action for a much longer period than otherwise would be the case.

Another form of conjunctivitis that must be recognised is the angular, which persists for a very long time, and, unlike the last form, will not get well unless treated in the proper manner. It is an inflammation of the conjunctiva which is mostly confined to the outer and inner canthus extending over on to the skin at these points, some redness being also found along the edge of the lids. It is not accompanied by much discharge, though slight stickiness in the morning is usually complained of. Whatever lotion is used, sulphate of zinc (gr. i. or ii. to ℥ i.) must form one of the ingredients, otherwise no improvement will result; zinc is a specific for the organism found in this kind of conjunctivitis, and is the basis of all successful treatment.

From a busy practitioner's point of view most conjunctivitis cases may be classed in one or other of these categories, and an inflammation of the conjunctiva which appears to be getting chronic is often benefited by treatment with zinc. In any specially stubborn variety the lids may be everted and their conjunctival surfaces painted with protargol (20 or 30 per cent.), and, if this is not successful, with silver nitrate (gr. x. to ℥ i.), applied by means of a cotton-wool swab on a glass rod. But occasionally much more severe forms of conjunctivitis will be brought to the medical man. Ophthalmia neonatorum or gonorrhœal conjunctivitis is one of this kind, and is a special type of mucopurulent conjunctivitis due in the majority of cases to the presence of the gonococcus; it occurs usually in infants, though the same condition is found more rarely in adults. It is extremely dangerous owing to the liability of the cornea to become quickly involved, when it often results in the loss of the eye. Now this fact is well known to the general practitioner, and he is therefore eager to make himself familiar with the proper form of treatment. He knows that 2 per cent. silver nitrate is the staple remedy, and he often becomes so over-anxious that he applies this antiseptic with such vigour that sometimes it causes the very complications he has set himself to avoid. The proper line of treatment is to wash out the eye with perchloride of mercury (1 in 5000) or boric acid lotion every hour during the day, and every four hours during the night, steps being taken at the same time to cover up the other eye, if still unaffected, with a Buller's shield or some similar apparatus; the lids must be everted and painted once a day *only* with 2 per cent. silver nitrate by means of a swab of wool fixed on a glass rod so long as there is copious purulent discharge, and some ointment must be applied to the edges of the lids to prevent them sticking together. As soon as the discharge becomes distinctly less in amount it is better to employ weaker remedies, such as protargol for painting and a milder lotion; in this manner the effects of over-zealous treatment can be best avoided, and there is perhaps no class of case where a change of treatment is followed by more beneficial results. Every day the cornea must be carefully inspected, the lids being kept apart, if necessary, by retractors, and as soon as it appears in the slightest degree hazy, atropine drops or ointment (1 per cent.) must be applied at once, so that, in the event of a perforation occurring, there may be less likelihood of inclusion of the iris in the wound.

A common form of conjunctivitis found mostly in children is the phlyctenular type. This may or may not be accompanied by photophobia, according to whether the cornea is affected or not, and the treatment differs also. In a simple case it is usual to give some slightly stimulating lotion, such as perchloride of mercury, to wash out the eye with, and if only the sclerotic be affected a little boric ointment gently rubbed over the eye by means of the closed lid often will suffice to bring about a rapid cure. Yellow oxide of mercury is seldom necessary in simple cases, and only irritates the ulcer when there is corneal complication. If the phlyctenule spreads on to the cornea a phlyctenular ulcer is produced, and the case must then be treated as a corneal affection—viz., with atropine ointment or drops (1 per cent.). Intense photophobia always accompanies this condition and is generally indicative of the extent of involvement of the cornea; it often makes examination extremely difficult, but as perforation not uncommonly occurs an occasional inspection of the cornea is essential in order to see whether the atropine is taking effect. Ill-health is a predisposing cause, so that a primary part of the treatment is to attend to this by means of tonics, general hygiene, and change of air.

Any unusual or atypical form of conjunctivitis is often confined to one eye for a long time and defies all the ordinary methods of treatment. Under these circumstances it is advisable always to evert the lid and make a thorough examination of the conjunctiva on its inner surface; in this way trachoma, some conjunctival growth, &c., may be detected and special treatment must be adopted. But a good rule to follow is to obtain an expert opinion whenever conjunctivitis resists for several weeks the ordinary methods of treatment described above.

Cornea.—Affections of the cornea are usually either ulcerations of various types with special characteristics according to the organism present or interstitial keratitis. Ulcers of the cornea may be (1) superficial (associated with some slight conjunctivitis on which the condition of the cornea depends), (2) phlyctenular, (3) hypopyon, or (4) rare forms of ulceration. But from the general practitioner's point of view there is no need to commit oneself to any special diagnosis, since the line of treatment is practically the same in all forms of corneal ulceration. Treatment applicable to special types, after the ordinary methods have failed, are better carried out either by or after the advice of an ophthalmic surgeon.

It is well to bear in mind that, generally speaking, whenever the cornea is affected photophobia or a pricking sensation is complained of, and this symptom, though often unaccompanied by any visible manifestation of loss of tissue, should never be neglected. Conjunctivitis alone never gives rise to this symptom, and it is an indication that the cornea has become involved.

If in doubt about the condition of a cornea there are three methods of investigating in order to make certain on the point. 1. Loss of the natural brilliancy at any part.

2. Staining. A drop of fluorescin (2 per cent. in saline) instilled into an eye will stain any ulceration of the cornea a greenish colour. 3. Examination with a small corneal magnifying lens. This will often render visible small spots too minute to be detected with the naked eye even after staining. Phlyctenular ulcers have already been referred to under conjunctivitis, and the possibility of perforation must always be kept in mind. But the two most dangerous and urgent ulcerations of the cornea are (1) the results of ophthalmia neonatorum or gonorrhœal conjunctivitis, and (2) hypopyon ulcer. The former all general practitioners are on the lookout for, but the latter will often escape observation unless special attention be directed to it, since, contrary to expectation, it is generally unaccompanied by any pain or photophobia, and it is therefore wise to look for pus in the anterior chamber in every case of ulcer which is obviously severe and yet with absence of photophobia. Both these conditions, if temporised with, may lead to the loss of an eye in the course of a few days, and it is therefore advisable to share the responsibility as early as possible. The same may be said of any case where the corneal condition does not show signs of improvement after a few weeks of the ordinary methods of treatment. All cases of ulceration of the cornea must be treated by washing out the conjunctival sac with some form of non-irritating antiseptic lotion as for conjunctivitis, and applying either atropine drops or ointment (¼ to 1 per cent.), *no matter where the position of the ulcer may be.* Provided there is no conjunctival discharge, the eye should be tied up and the irritation from bright light guarded against by wearing smoked glasses; this is better than confinement in a darkened room, which is apt to become depressing. Attention to the general health is always necessary in addition to local applications.

Interstitial keratitis (usually but by no means invariably due to congenital syphilis) is almost always an alarming condition to the general practitioner. Starting as an intense and deep vascularity of the cornea in the upper or lower quadrant (or both) at the limbus, it rapidly covers the whole of the cornea and gives rise to a whitish-red infiltration which effectually obstructs all rays of light, and the patient is blind to all intents and purposes. A vigorous and perfectly correct line of treatment seldom has any influence in checking its course up to this point, and the appearance of the eye and effect on the sight is so alarming to the patients and their friends that the general practitioner is continually bombarded with questions which he has considerable difficulty in circumventing if his knowledge of the subject happens to be limited.

Bathing the outside of the eye with as hot water as can be borne, the instillation of atropine, tonics, and the exclusion of light by dark glasses is the treatment to be carried out in order to obviate complications which often arise in the course of this disease; otherwise the cure is largely a question of time. It is characteristic of interstitial keratitis (certainly of the syphilitic variety) that, considering the apparently serious limits to which the eye has been reduced, the recovery may be so complete that the ultimate damage to the sight is surprisingly small, and the vision may be little, if at all, below the normal. This piece of information is an invaluable asset to the general practitioner's stock of knowledge at a more critical stage of the disease.

The sclera.—Episcleritis, even to the most experienced, is viewed with misgivings, as it runs a very chronic course and displays an obstinate indifference to many various lines of treatment. The only point for the general practitioner is to be able to diagnose it, and thus not view too lightly the early manifestations, which are sometimes of an apparently trivial nature. Localised redness of the sclerotic near the limbus, with a nodular formation which often has a characteristic purplish hue, and over which the conjunctiva is freely moveable, is more or less typical of this condition. Its situation near the limbus renders it liable to be mistaken for an ordinary phlyctenule; it is distinguished from the latter by its chronic course, and the fact that it generally occurs in adults while it is uncommon in children. Therefore it may be said that when a superficial inflammatory patch appears at the limbus in an adult which looks like a phlyctenule, always suspect episcleritis and be proportionately guarded in giving an opinion. The causes of episcleritis are very numerous, and therefore require many different methods of treatment. Any source of infection or toxic absorption may produce inflammation of the sclera and calls for special treatment, but in the absence of any definite cause a general rule is to treat it like corneal conditions.

The lids.—A general practitioner is often called upon to advise in cases of blepharitis, meibomian cyst, and a sty. As regards the first of these, the treatment differs according to whether the edges of the lids are (*a*) moist or ulcerative, (*b*) much inflamed and red with a good deal of incrustation, or (*c*) only slightly inflamed with much or little incrustation. The moist type is best treated by painting the lids with protargol (20 or 30 per cent.) once or twice a week until they become dry, and in the intervals use a lotion containing boric acid and zinc sulphate, and rub gently into the lids night and morning some mild mercurial ointment (ung. hyd. amm. dil.). In the second variety it is best to begin with a bicarbonate of soda lotion (gr. x. to ℥ i.) in order to dissolve the scabs, and then apply weak mercurial ointment by gentle rubbing as in the moist form. As soon as the tendency to the deposits of crusts has ceased, use a lotion containing sulphate of zinc (gr. i. or ii. to ℥ i.) and apply a stronger mercurial ointment (ung. hyd. flav. dil.) in the same manner as before. In the third variety similar methods should be adopted to those in the second, but the yellow oxide of mercury ointment may be commenced at once. I attach importance to the method of applying the ointment by rubbing and not merely by smearing it on; the slight massage to the edges of the lids is, I think, a matter of no small account in the treatment of this disease.

A meibomian cyst must be dealt with when it gets beyond a certain size, and also when it has become chronic and shows no tendency to disappear. It is well to remember that in small swellings, and in those just commencing, gentle massage of the lid against the globe will often remove the obstruction in the duct of the affected gland which always marks the initial stage of a meibomian inflammation. This cyst, as it grows, points on the inner or conjunctival surface of the lid, as might be expected from its anatomical position, and however much redness or swelling of the skin there may be over it, a small pointing spot will always be discovered on the inner side, and it is in this position that an incision has to be made. In addition to this opening, which must be at right angles to the edge of the lid, the contents must be *thoroughly* scraped out with a small Volkmann's spoon, specially made for the purpose, until every vestige of the cyst wall has been removed, otherwise the enlargement will soon recur. It is as well to inform the patient that immediately after this little operation the cyst will swell up with blood, but that this will soon become absorbed, and in any case there is the possibility of a similar glandular inflammation occurring again at some future time.

On the other hand, a sty will tend to point along the line of the lashes, and shows no tendency to spread to the conjunctival surface. It may often be left alone so far as operative interference is concerned, and will readily disappear on the application of hot fomentations or hot bathing; at the most a small incision when it is actually pointing is all that is required. As soon as the lid becomes less inflamed, treat the case as one of blepharitis with a boric acid and zinc lotion, and the application of yellow oxide of mercury ointment by means of rubbing.

The lacrymal sac and duct.—Diseases of the lacrymal sac and duct resolve themselves, so far as the general practitioner is concerned, into two categories—viz., (1) watering of the eyes without any formation of an abscess; and (2) watering of the eyes followed at some period by the formation of pus, and abscess in the lacrymal sac. As regards the former, the first point to determine is whether the duct is patent or not, and this can be decided by syringing some water or boric lotion into the sac through the puncture by means of a specially constructed lacrymal syringe. If the duct is open and free, as shown by fluid passing down through the nose into the throat, there is nothing more to be gained by treatment in this direction. All probing and slitting up of the canaliculus should be studiously avoided; whether under any circumstances it is the right treatment or not in a given case is a matter about which there is still considerable divergence of opinion amongst ophthalmologists, but, from a general practitioner's point of view, I have no doubt whatever that operative interference in connexion with the lacrymal apparatus is attended with distinct risks to his professional reputation. Perhaps the

punctum is small or not properly applied to the globe; or again, watering of the eye may be merely due to an excess of the normal secretion due to irritation from a slight conjunctivitis; the latter may be treated with sulphate of zinc lotion as described under conjunctivitis.

All treatment under this heading is largely dependent on the amount of actual discomfort which the patient himself experiences; many cases require no treatment at all, since it is no great hardship on many people to suffer slightly from watery eyes in the wind or cold. When an abscess has formed in connexion with the lacrymal passages a large tender swelling appears at the inner cauthus and extends over the neighbouring part of the nose. It is extremely painful, and the only treatment to be adopted is the continuous application of hot fomentations and an incision when the abscess shows signs of pointing, which it does almost always just below the position of the internal tarsal ligament. Syringing or investigation of the lacrymal passage at this stage is never permissible.

I am disposed to think that, when an abscess has once formed, the right treatment is to excise the lacrymal sac after all symptoms of inflammation have completely subsided; but for decision on this point, and indeed for all operations on the lacrymal sac and duct, an expert opinion is advisable.

The iris.—If once the general practitioner can manage to grasp the various methods connected with the examination of the iris it will prove a valuable guide to the diagnosis of many otherwise obscure cases in ophthalmology, and at the same time it is a part of the eye which is large enough to be visible and capable of investigation without the aid of any special instruments.

Before proceeding further it will be best to describe the symptoms and signs of acute inflammation of the iris which frequently comes under the notice of the practitioner and with which he must be perfectly familiar. Iritis is characterised by (1) pain, often intense and especially at night; (2) circumcorneal (or ciliary) injection; (3) fixed contracted pupil, with some iritic adhesion; (4) discolouration (or so-called muddiness) of the iris, resulting in loss of pattern; (5) exudation into and opalescence of the aqueous humour; and (6) tension normal or slightly reduced. The general practitioner cannot too often contrast these points with those to be described later under "Glaucoma," for which iritis is most commonly mistaken—a mistake, however, attended by the most serious consequences.

The treatment consists in the application of hot bathing to the outside of the eye, atropine instillation (1 per cent.) three times a day, leeches or blisters to the temple if the pain is severe, and protection from light by wearing dark glasses. As iritis is produced by many different causes, a thorough investigation must be made into all possible sources of infection—e.g., gonorrhœa, syphilis, tubercle, rheumatism, gout, teeth, sinuses, intestinal, &c.—and an appropriate treatment adopted.

In addition to acute inflammation there is the chronic form which is slower and more insidious in its onset, and often involves the ciliary body. Being less acute there is very little pain and perhaps hardly any ciliary injection, while the aqueous humour remains clear; otherwise the same signs must be looked for as in the acute variety, and the treatment must be applied on similar lines, particular attention being paid to the atropine instillation. Apart from inflammatory reactions the condition of the iris affords such a useful index to so many other diseases of the eye that a critical examination in every case which comes under our notice should never be omitted. It is one of the first steps in any ophthalmic examination, and from a general practitioner's point of view the most important of all.

There are several observations to be conducted on the iris, of which the following may be especially mentioned.

1. *The reaction of the pupils* to light should always be taken in every case and conducted separately on each eye. Normally each eye should act both direct and consensually, and also to accommodation. The eye *not* under examination should be completely covered so as to exclude all light, and the direct action of the uncovered eye can then be tested by alternately covering and exposing it when a brisk contraction ought to take place whenever light is admitted, thus showing the direct action to be normal; then, on uncovering the opposite eye, a further slight contraction ought to occur showing a normal consensual reaction. Then apply the test for accommodation. If these manœuvres be properly carried out there are five abnormalities in the pupil reaction to be detected. (*a*) No direct action, but only consensual; indicating defective light conducting mechanism of the eye under examination in some part of the sensory tract—viz., in the retina or optic nerve. (*b*) No reaction consensually, but only directly. This indicates defective light conduction in the opposite eye. (*c*) Neither direct nor consensual reaction. Unless the pupil is mechanically prevented from acting by iritic adhesions, this represents the fixed dilated pupil seen in glaucoma and mydriasis, and shows that there is third nerve paralysis on the side under examination, or that the light conducting element of the same or both sides may be defective. (*d*) The Argyll Robertson pupil—viz., action to accommodation, but not to light. (*e*) Failure of the iris to maintain contraction when light is thrown into and fixed on the eye by means of a lens and oblique illumination. Normally, after a few oscillatory movements of the iris, which are normal, the pupil remains in a state of contraction. If it does not, but tends to become dilated in spite of the continued presence of light, it indicates commencing defects in the light-conducting elements of the eye under examination, and is a warning of the onset or existence of optic atrophy, retrobulbar neuritis, glaucoma, degeneration or detachment of the retina, &c.

2. *The inequality in the size of the pupils* is of extreme importance, since it must always be regarded as of pathological significance rather than congenital, until a careful examination has been conducted to exclude the former. It is often a matter of difficulty at first to determine whether the larger or the smaller pupil belongs to the affected eye, and this can only be definitely settled by reference to their reaction. Speaking generally, dilatation means either paralysis of the third nerve, defects in retina or optic nerve, or irritation of the cervical sympathetic, and contraction of the pupil shows either paralysis of the sympathetic or irritation of the third nerve. Thus dilatation is present in glaucoma and other affections of the retina and optic nerve, while contraction is present in affections of the cervical sympathetic in the neck. Inequality of the pupils may be the first sign of optic atrophy, degeneration of the retina, glaucoma, detachment of the retina, &c.

3. *The shape of the pupillary border* must be noted and observation made as to its regularity or position. If irregular the probability is that old iritic adhesions tie the pupil down to the anterior capsule of the lens in certain places. A pear-shaped pupil is often an indication of the tendency to, or the existence of, glaucoma.

4. *The colour of the iris* as compared with the other eye is to be regarded in the same light as that of inequality—namely, that it is more likely to be pathological than congenital, and the lighter coloured iris usually points to the affected side, so that cases presenting this peculiarity must be most carefully examined.

A semi-translucent appearance of the iris often accompanies glioma of the retina or some choroidal inflammatory deposit which is not pursuing a satisfactory course.

5. *The actual size of the pupil*, apart from inequality, is important, since glaucoma may lead to dilatation of the pupil on both sides, while the reverse—viz., small pupil—is a common accompaniment of old age and is physiological.

6. *Gaps in the iris or nodules on the surface* all assist in forming an opinion of old or existing defects of the eye.

7. *The depth of the anterior chamber*—i.e., the plane of the iris with reference to the cornea—must be noted; a shallow chamber is commonly seen in glaucoma, but may be physiological in old people; a deep chamber indicates probable myopia, old cyclitis, dislocation or absence of the lens. In dislocation of the lens the iris is also tremulous on moving the eye in different directions. A chamber may be shallow at the circumference and deep in the centre, a condition seen in bombé iris—i.e., when the *whole* of the pupillary border of the iris is bound down to the anterior capsule of the lens, which prevents the fluid secreted by the ciliary body coming forward into the anterior chamber, and so the iris becomes bulged forwards at the periphery

The ciliary body.—Apart from the condition of the iris, diseases of the ciliary body are very difficult to detect, since the only visible sign may be the presence of keratitis punctata, which are minute, well-defined round spots on the back of the cornea due to deposit of small masses of leucocytes; for their detection the use of the corneal magnifying

lens is generally necessary, and although in many cases the spots are obvious when viewed by this means, the quieter, and consequently the more serious, cases of cyclitis give rise to such minute dots of keratitis punctata that it often requires a good deal of experience to be sure of their existence. In short, it may be said that any case which the practitioner has decided is one of iritis and which runs a prolonged course in spite of treatment is probably complicated by involvement of the ciliary body, and is also a condition which may follow any serious inflammation of the cornea or iris. Cyclitis is also produced by infection from any other part of the body, as mentioned under iritis. The treatment consists in hot bathing to the outside of the eye, continuous use of atropine or some equivalent mydriatic, leeches or blisters periodically to the temples, the avoidance of all use of the eyes, and protection from glare by the wearing of dark glasses. Appropriate treatment with tonics, &c., and attention to the general health according to whatever cause prevails.

Glaucoma.—Glaucoma is the disease of the eye which, more than any other, haunts the mind of the general practitioner; and rightly so, for there is no class of case where rapidity and accuracy of diagnosis are of such vital importance to the patient, and an error of judgment, for which there is little excuse, may easily cost the patient his sight. There are two kinds, acute and chronic; the former gives the best chance of a good prognosis if promptly treated, and comes more under the notice of the general practitioner than the latter, and it is therefore one of the few instances where it is extremely necessary for him to be able to make a sure and certain diagnosis. It is a condition that more often than any other is mistaken for iritis, and treated accordingly with the most disastrous results. The symptoms which I am about to describe must, therefore, be well fixed in the mind, and continually contrasted with those of iritis, already described. 1. Pain over the affected eye and confined to the corresponding side of the head. 2. Increased tension. 3. Fixed dilated pupil. 4. Steamy cornea. 5. Shallow anterior chamber. 6. Coloured rings round the lights. 7. Often vomiting, owing to the severity of the pain. It is easy to see at once that the subjective symptoms may be, not without reason, attributed to a bilious attack, for which they are most commonly mistaken. An examination of the eye will quickly dispose of this error.

The treatment consists in only one course—viz., the performance of an iridectomy. Eserine drops (¼ to 1 per cent.) instilled into the eye frequently is the only form of legitimate temporising, and this can only be adopted for a few hours while preparations for operation are being made. I am distinctly in favour of steps being taken to reduce the blood pressure prior to an operation, but these are best carried out in the hospital or wherever the operation is to be subsequently performed.

I have no hesitation in saying that the performance of iridectomy undertaken by the general practitioner himself in a case of acute glaucoma is an extremely injudicious procedure, since it is one of the most difficult and delicate operations in ophthalmic surgery, and yet where each point in the technique is of vital importance to the patient; it is comparatively easy to do an iridectomy of some sort, but to perform the operation in the proper way and restore the patient's sight, while avoiding at the same time all complications, is another matter altogether.

Chronic glaucoma is a less urgent condition, and a policy of temporising is not attended by such serious consequences, but, on the other hand, it is more difficult to diagnose and is insidious in its onset, owing to the absence of any of the leading signs which characterise the acute form. Indeed, it almost comes under the second group of cases to be described later on where there is no external evidence to guide us in forming an opinion. Often the only history obtainable is one of periodical attacks of pain and obscuration of sight, each attack leaving the acuity of vision slightly less than it was before. In many cases the only sign to be elicited on examination is a slight enlargement of the pupil on the affected side and failure of the iris to maintain contraction when light is thrown into the eye, but as this is present in other conditions as well as glaucoma the test becomes of only relative value. Cupping of the disc, of greater or less degree, can usually be seen with the ophthalmoscope, but it is often not typical, and as I have already excluded all detailed ophthalmoscopic work, I do not propose to attach any importance to this sign for the purposes of this paper. Sometimes contraction of the field of vision on the nasal side can be shown roughly on examination, but more often a careful perimetric chart is necessary. Having once diagnosed chronic glaucoma, eserine (¼ per cent.) must be instilled regularly twice a day and attention paid to the general health; temporary rise of blood pressure may precipitate an acute attack at any moment. Operative treatment, about which there is still some difference of opinion, aims at ensuring an efficient drainage from the anterior chamber, and many methods have been devised for this purpose, but even in the most experienced hands they are often followed by less satisfactory results than in acute glaucoma; still, in my opinion, it is generally necessary and the right treatment to be pursued. At the same time, this element of doubt only constitutes an additional reason in favour of the general practitioner asking for a further opinion, and not venturing to rely on his own judgment.

The lens.—The lens may be removed from the eye either by accident or design, and it may also be displaced either backwards into the vitreous or forwards into the anterior chamber. In any case, if the lens is not in its usual situation, the anterior chamber is always deep, and the iris is usually tremulous on movement of the eyeball. There are various forms of cataract about which our opinion may be asked, and they may occur at any age, the commonest being the senile variety. The main steps to be followed in forming a conclusion about a case of opacities in the lens are much the same for any variety of cataract at any age. The first is to examine carefully in order to ascertain whether there be a cataract or not, and it is curious, considering the comparative ease with which this point may be determined, how frequently mistakes are made. It is as well, if possible, to take the actual vision by Snellen's types, counting fingers, or hand movements, according to the density of the opacity, but failing this the pupil reaction must be thoroughly investigated. Remember that, provided there is no other disease present in the eye at the same time, no cataract in any stage is so dense as to cut off sufficient light from the eye to invalidate this test, and the pupil reaction in the case of cataract behaves in exactly the same way as in the normal eye. Next, unless there is any contra-indication, dilate the pupil and see, by means of reflected light in a dark room, the full extent of the opacity. Never express any opinion on a cataract until this method has been carried out; there is nothing more deceptive than to commit oneself to a hasty diagnosis by examination in daylight or by means of oblique illumination alone. Under these circumstances any opacity in the lens shows up as a black spot or streak against the red reflex of the fundus, and if there is absence of the red reflex in all positions then the opacity is sufficiently dense to obscure all light, and, in this manner, we can determine how much or how little of the lens remains unaffected. If a lens be completely mature it is often quite obvious by external examination alone, and then oblique illumination fails to "throw a shadow of the iris on the lens." This piece of information, which figures so largely in text-books, only tells us that, all other things being equal and favourable, the eye under examination is fit for operation, and the lens can be extracted, but this is a very small point in the treatment of cataract, and it is advisable for a general practitioner never to hazard an opinion as to whether a cataract can be successfully operated on or not, and also, unless the opacity actually interferes with the sight, to avoid the use of the term "cataract," which to patients is always synonymous with "blindness."

Cataract may be due to a variety of causes, and the treatment is practically only operative, but the question of operation turns on many points besides that of opacity, the latter being relegated to a comparatively minor position. Some are as follows: (1) The original cause of the cataract; (2) the condition of the unaffected eye as regards vision, &c.; (3) the extent to which work or methods of life are interfered with; (4) the general conditions of health—e.g., cough, albuminuria, diabetes, extreme old age, &c.; and (5) the condition of the fundus in the affected eye. As a rule there is no immediate urgency about an operation for cataract except where it occurs in extreme youth in both eyes, when the sooner extraction is performed the better, in order to develop the function of the retina.

Glaucoma is sometimes mistaken for cataract, but there

is little excuse for this. We have only to carry out the pupil reaction (which is normal in cataract and defective in glaucoma) and the examination by reflected light in a dark room (when the normal red reflex is present in glaucoma but absent in cataract) to be certain on this point.

Cataract, as a secondary complication of glaucoma, only occurs when the latter has reached the stage where a mistaken diagnosis is impossible.

Injuries.—The commonest injuries with which the general practitioner has to deal are foreign bodies under the upper lid or on the cornea, and corneal abrasions; more serious ones are perforating wound with prolapse of the iris and possible inclusion of a foreign body in the eye, or rupture of the eyeball with expulsion of some or all of its contents. It is useful to remember, as regards foreign bodies, that those under the upper lid generally produce much more pain and redness of the eye than those embedded in the cornea; in fact, roughly speaking, the more severe the injury to an eye the less pain is complained of.

To remove foreign bodies from the upper lid the latter should be everted, and I think it is safe to say that this is perhaps the only piece of manipulative skill in connexion with the eye that a general practitioner need learn properly, since to carry out the manœuvre easily and without discomfort to the patient undoubtedly requires a certain amount of dexterity. Practical instruction by someone who is thoroughly accustomed to it is better than any amount of description, which is almost sure to be imperfect, and probably will not convey the idea which is intended. When once the lid is everted the removal of the foreign body is perfectly simple and can be carried out with any suitable material, such as a piece of lint or cotton-wool rolled into a point.

When a foreign body is embedded in the cornea it may be necessary to carefully search for it with a magnifying lens, as there are never so many external signs of irritation as in the former case, and a patient's history of what he thinks was a foreign body must never be neglected. Having localised the position of the foreign body its removal must be effected with the least possible disturbance to the corneal epithelium both at the site of injury and in the surrounding parts, since the new epithelium, although very quickly regenerated, is never quite so firmly attached or healthy as the original uninjured layer, and thus very readily becomes detached again at some future time by the slightest scratch; so that it is always well to attempt the removal, after previous cocainisation, first with a piece of cotton wool rolled up into a point, a stiff piece of card, or some other material which does not disturb the surrounding epithelium; failing this a spud must be used, and lastly a needle. In all cases the eye must be tied up afterwardsfor 24 hours, and if the cornea has been much disturbed a drop of atropine (1 per cent.) is advisable to keep the eye quiet for a few days.

In corneal abrasions it is not always easy at first to detect any disturbance of the surface, although the pain and redness of the eye may be intense; but a drop of fluorescin will immediately disclose its position, when all that is necessary is to tie up the eye and keep it closed for a day or two, with or without a drop of atropine.

Whenever the corneal epithelium is denuded a guarded prognosis must always be given for the reason I have just mentioned in speaking of foreign bodies on the cornea; and one must never be led into giving a too optimistic forecast with regard to a recurrence, judging only from the rapidity with which they heal.

More serious injuries are prolapse of the iris through a perforating wound in the cornea and rupture of the eyeball. With regard to the former, it is generally easy to see, by making a careful examination, that the iris is not in its normal situation but is drawn up to the wound, and an operation is generally necessary as early as possible to effect its release. There are some points of special technique concerned with this operation, and the case is best left to an ophthalmic surgeon immediately the condition is diagnosed; if the prolapse has existed for more than a week it is better, perhaps, to wait until the eye has quieted down before any operative interference is advised. Treat the eye with a pad and bandage, some simple lotion, and atropine instillation twice a day.

In rupture of the globe with expulsion of some or all of its contents a very skilled and well-considered opinion is most desirable, and yet it is a class of case where anxious friends are very liable to press their doctor for a definite opinion. Roughly speaking, it may be said that, *whatever the position of the wound*, many eyes which used to be regarded as hopeless are now saved and ultimately become very useful organs of vision, so that the general practitioner's duty is to tie the eye up as in any other wound, give as encouraging a prognosis as possible, and never commit himself to the opinion that the eye must be removed or that it is in a hopeless condition.

Squint and defects of muscular action.—Although it is not essential, nor indeed advisable, that the general practitioner should carry through on his own account the treatment of a case of squint in every detail, still he must be perfectly familiar with the various steps necessary to bring about as satisfactory a cure as possible, *both as regards the deformity and also the visual acuity of the squinting eye.* Parents are naturally most anxious about the former, since the importance of the latter is not known to them owing to the fact that, when both eyes are open, the visual acuity of the non-squinting is sufficiently useful to create the false impression of good sight in both. Unfortunately, general practitioners are often deceived themselves and fall into the same error as the parents, and, from their knowledge of the fact that a squinting eye in some cases eventually becomes straight, they seek to allay the anxiety of the parents by saying that "he or she will grow out of it." This remark is even now frequently heard, but no graver mistake could possibly be made in the initial stages of the treatment of squint. An eye, which is not directed towards an object, so that the image is formed on the true macula, can never have the full standard of vision, even though some other portion of the retina has been developed in order to produce a false macula. Therefore, an eye which is abnormally deflected will gradually lose its power of visual acuity, the loss being greater the earlier this deviation occurs and the longer it is allowed to remain in this position; and provided we have come to the conclusion by the application of the recognised tests that an eye squints, the sooner vigorous steps are taken for rectifying the deformity the better results we shall obtain. There is no age too early to begin, but of course in the case of infants it is not always an easy matter for the comparatively inexperienced to be sure whether a true squint really exists or not. The first point to decide, when a child is brought to us who is said to squint, is whether there is a real squint or only an apparent one. Get the child to fix an object immediately in front of it about two feet away, then let us make up our minds which eye appears to us to deviate; this eye, therefore, is *not* fixing the object, and vision is being carried on entirely by the other eye; now cover with a card the fixing eye and ask the child to still observe the object; in order to do this with the non-fixing eye a movement must be made for the purpose of seeing clearly. If this movement occurs in the non-fixing eye then we may pronounce the case one of real and not apparent squint only; whereas if no movement takes place the general practitioner (not always the expert, however) is justified in assuming that a squint is not present. Again, a squint, if it exists, may be concomitant (i.e., associated with the movement of both eyes together) or paralytic, and the latter can be independently investigated by testing the actions of the various muscles. This condition generally occurs in adults, and a good deal of help is gained from the history they give which enables us to make a more or less accurate diagnosis, but the concomitant variety of squint calls for unassisted examination and immediate treatment.

Squint may be convergent or divergent; and concomitant strabismus is generally due to a combination of three causes—viz., (1) refractive error, (2) defective muscle balance, and (3) bad fusion sense, though sometimes only two may be necessary to produce deviation. The predisposing cause is the error of refraction, and, if the child is old enough to read, the accurate vision *in each eye separately* must be taken and recorded; the error must then be measured by retinoscopy under atropine, and suitable glasses ordered for constant wear. The practitioner may, if he has had considerable experience in refraction work, order these glasses and carry out the first step in the treatment on his own account; and if, or as soon as, the child is able to read letters, a periodical record of the vision in each eye, especially the squinting eye, must be carefully kept, but this is only of value when

the deviating eye has been straightened as a result of wearing glasses. No matter how carefully and accurately the glasses have been measured, if they fail to remove the deformity of the squinting eye when regularly worn there is the same danger of amblyopia occurring as if glasses had never been ordered, except by the adoption of methods which are almost impossible for the general practitioner to arrange for. The deviation is not always rectified at once, and during the period of alteration it is a good plan to educate the squinting eye by covering the fixing eye for a certain time during each day; in this way the eye becomes a useful organ immediately it assumes the straight position. It is better to wait at least a year before stating definitely whether glasses will be successful in correcting the deformity or not; if at the end of this time there is no improvement in the condition, it generally shows that the case has not come under observation early enough, and that the muscles, which by their action have contributed to the production of the deformity, have become permanently fixed and contracted, so that the effect of wearing glasses to remove the predisposing cause is not sufficient to overcome the muscular defect; it is therefore necessary to deal in some way with the offending muscle, and thus various operations have been devised. Now, when we have arrived at the stage of treating squints by the performance of operations on the muscles, I should strongly advise the general practitioner to surrender the case to an ophthalmic surgeon. Nothing sounds easier than to perform a tenotomy on an over-contracted muscle, and, indeed, it may be considered a perfectly simple operation even to those not specially adept in ophthalmic surgery; but the remote effect of a tenotomy or any operation on the ocular muscles is so variable in its results that it is never safe to prophesy exactly what is going to happen, and even if the medical man's reputation does not suffer he may sooner or later find himself face to face with the question of deciding what is to be done next without any very clear idea of the mode of procedure.

The muscle balance of the eyes, which should normally be preserved without any voluntary purposive muscular action, may be at fault and give rise to very marked and uncomfortable symptoms, apart from any error of refraction or defective fusion sense. Very little of this is known to the general practitioner, and it requires special methods for its detection and treatment; the latter is carried out either by exercises, prescribing of prisms, or operations on the muscles. These cases should, I think, be left alone, and the medical man has simply to bear in mind that intense headache, perhaps lasting all day and unaccompanied by any error of refraction, may be caused by want of balance in the ocular muscles. Definite paralytic conditions of the muscles may be due to local causes or may be a symptom of some disorder of the central nervous system.

Defects of Sight unaccompanied by any Obvious External Evidence of Disease.

We have now come to the second group where patients complain of some defect of vision in one or both eyes, but in whom there is nothing externally visible to guide us in making a diagnosis. In these cases we must conduct a very methodical and independent examination.

In the first place, we must verify the patients' statement regarding their vision by taking a record of the sight in each eye separately with Snellen's types, &c.; then examine the pupil reaction and tension as described in a former paragraph. The case may be one of refractive error or intraocular disease, and we must always assume it to be the former until we have proved the contrary. Steps are next taken to settle this point by means of retinoscopy either with a plane or concave mirror, and this may be carried out either with or without a mydriatic, though the latter method requires considerable experience. The promiscuous use of a mydriatic, even homatropine and cocaine, for diagnostic purposes in all affections of the eye is not to be encouraged, though after some time one learns where dilatation of the pupil may safely be undertaken, but we must never forget that cases have been known where, in those liable to glaucoma, an acute attack has been precipitated by the use of atropine.

By carefully comparing the results of our retinoscopy with subjective testing the most suitable correcting glass can then be found, but our difficulties are by no means then at an end, for we have to make our patients comfortable in their glasses for everyday use, which is often a very different matter. The many little details that require consideration in the ordering of glasses, the statements made and questions asked by patients, and the complaints which arise after the first few weeks of wear, have all to be satisfactorily settled.

Moreover, good refraction work is the foundation of all future ophthalmic practice, since the public are still imbued with the idea that glasses can cure all defects of sight, and if a general practitioner, after all his trouble, succeeds in giving satisfaction, he will immediately gain the reputation in the neighbourhood of being an experienced ophthalmic surgeon. Thus cases of all sorts will be sent to him, some of which probably he has never seen before and will have a very imperfect idea of how to handle. Is this what he desires or is it not? This is the question he will eventually have to face, and perhaps several eyes may be lost before he has made up his mind.

In spite of all this, an elementary knowledge of refraction work, such as may be gained by an attendance of two or three months at an ophthalmic hospital, is absolutely essential to a general practitioner. He will save himself endless labour and worry if he knows and can detect the movements of the shadows in hypermetropia, myopia, and simple or mixed astigmatism, and is able to estimate approximately the glasses which correct the error. It often happens that a patient has perhaps only one defective eye, which when tested by Snellen's types appears to have a very low degree of visual acuity, and we are in doubt as to whether it is due to disease or merely refractive error; a knowledge of the use of the retinoscope will soon clear up this doubt without being strictly accurate in the results, and improved vision with a correcting glass will soon make an apparently serious case appear far less formidable. A careful examination of the fundus, however, is desirable as early as possible. In every case of defective sight for which there is no obvious external cause, never miss the opportunity of estimating roughly the refraction, even though it be a case where an operation has been performed.

A practitioner will be expected to order glasses for presbyopia, but this is by no means so simple as it sounds. Since presbyopia is a physiological process, it naturally differs in different individuals within certain limits, and no definite mathematical calculation by reference to the age will alone suffice to enable us to prescribe the correct glasses, some eyes being younger while others are older compared to the age of the patient. In the first place, all presbyopes must be tested for distance, and the strength of glass calculated from the age of the patient, due allowance being made for any small degree of myopia or hypermetropia. Then test subjectively and ascertain the glass with which the patient can see most distinctly the smallest Jaeger type at 12 to 18 inches, and it will generally be found that this works out very often considerably less than the mere mathematical calculation.

In the absence of refractive error, or the failure to produce any amelioration in the vision after correction with glasses, we have probably to do with a case of intraocular disease which may be situated in any of the media, the retina, or choroid.

I have elsewhere referred to the red reflex visible when light is reflected into the eye from an ophthalmoscope mirror, and this red reflex should be visible, provided the media are clear, with the same uniform intensity, to whatever portion of the fundus we direct the light. The different parts can be examined in this way either by inclining our head and thus directing the light towards the portion we wish to investigate, or by asking the patient to move his eye into the desired positions; the latter is perhaps the best method, since at the same time it sets in motion any defects in the eye (i.e., vitreous opacities or detached retina) which are capable of movement.

If we observe, for example, in any part of the fundus a white, grey, yellow, or black reflex instead of the normal red colour, we know that there is something abnormal in the interior of the eyeball, perhaps some new growth or inflammatory deposit in the vitreous, choroid, or retina; it does not matter for the moment exactly what the nature of the change is. The detail may require considerable experience in ophthalmoscopic diagnosis, and to apply a name to the

condition and satisfy the patient respecting it may be a matter of extreme difficulty, utterly outside what could reasonably be expected from a general practitioner, but he has been able to locate the part of the eye where the disease exists and is prepared to advise as to a further opinion, which is a point of no small importance. My reason for advising against all attempt at detailed ophthalmoscopic work is that there are three main difficulties which have to be overcome in the use of the ophthalmoscope. The first is, to get beyond and learn to disregard all the various reflections from the mirrors, cornea, &c., and obtain a view of the interior of the eye; the second is, when the different parts of the fundus eventually become visible, to distinguish the normal from the abnormal; and lastly, having definitely decided that a condition is abnormal, to interpret pathologically what is seen. To my mind it is impossible, with the material at his disposal, for the general practitioner to master satisfactorily these three difficulties.

It only remains to mention that, even after carefully following out these methods of examination, valuable as they are, we may still be unable to account for the defective vision. Such cases may be due to tobacco poisoning or some other form of toxic amblyopia, when we often obtain the history of failing sight occurring in both eyes simultaneously, both for distance and near, extending over a comparatively short period of time. Few other cases give this history, and a colour scotoma will also be present. Chronic glaucoma will often, as I have mentioned, only give rise to mists and halos, while optic neuritis and commencing optic atrophy may have perfectly good central vision, and the diagnosis can only be arrived at by careful ophthalmoscopic examination.

A good rule for guidance in obscure cases is never to neglect the history of blurring of the sight, however transitory in nature, and test roughly the field of vision in each eye separately (e.g., with a small piece of white card mounted on some suitable holder) when other methods of examination have failed to reveal any obvious disease.

Operations.

The operations on the eye are of a different type to operative surgery on other parts of the body and have to be separately learnt; it is quite impossible to gain any useful experience in this branch from the knowledge already acquired in ordinary surgical operations. The small area in which the work has to be done, the minute points in technique on which so much really depends (though to the inexperienced apparently trivial and exaggerated), the performance of most operations under local anæsthesia, the behaviour of different eyes, of ostensibly similar nature, to surgical interference, and the permanent results, glaringly obvious to all, of failures, often carried out to the very best of our knowledge and experience, are some of the causes which may well deter general practitioners from undertaking operations on the eye; and even those operations which admit of no adverse criticism from a surgical point of view sometimes bring little satisfaction to the patient for no obvious reason.

I should advise a general practitioner to consider carefully before he undertakes any ophthalmic operation; it is possible for him to create a good impression, but more often than not he will lose all the reputation he has already gained.

The drugs and instruments required can be gathered from what I have said under the different headings, and it will be seen that they do not amount to very much, with the exception of a small box of lenses; but with these and the methods of diagnosis I have briefly outlined the general practitioner will be sufficiently well equipped to deal with most eye cases which come under his care.

If it is thought that in one or two places I have expressed myself too strongly, it is because, after several years' independent experience of an ophthalmic and a general practice, I realise the difficulties met with in both; and that although they must necessarily be combined to a certain extent, a distinct line has to be drawn between the two; and I also believe it to be the sincere desire of many men in private practice to know how near they may approach this line with safety, alike in the interests of their patients and of their own professional reputation.

Harley-street, W.

OBSERVATIONS ON THE ETIOLOGY OF VACCINIA AND ON THE CULTIVATION OF THE MICROBE OF VARIOLA.

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IN an article dealing with the etiology of vaccinia and variola Dr. Klein gives in the medical officer's report to the Local Government Board for 1892–93 (published in 1894) an account and illustrations of the bacillus which he found in the early stages of vaccine lymph taken from a calf, and of a similar bacillus in variolous lymph. He was unable to cultivate either.

Studying the same subject from a different point of view I had since my arrival in India in 1886 been searching for cow-pox among cattle with the object if possible of cultivating the vaccinia micro-organism from them. I found, however, that the cow-pox I was searching for turned out to be in India a severe affection and I gradually came to the conclusion that many of the cases were small-pox. In fact, the cattle plague in Bengal is called by the Indians gotee and bassunto, two names to denote small-pox. The Indian Cattle Plague Commission of 1871, of which Colonel Kenneth McLeod, I.M.S., was secretary, came to the conclusion that the Indian cattle plague, which included gotee or matah, was allied to, if not the same as, that which used to prevail in England. My experience leads me to the conclusion that the term "gotee" includes a number of diseases of which small-pox is one, just as the term "rinderpest" may include a number of diseases difficult to distinguish from one another. I am fairly certain that some of the epidemics that go under the name of cattle plague or rinderpest in Bengal are small-pox. Anyone who makes a post-mortem examination of a virulent case of small-pox in the human subject and then a post-mortem examination of a case of cattle-plague or rinderpest as seen in Calcutta in a buffalo or cow cannot fail to be struck by the similarity in the naked-eye appearances of the lesions which have been produced and their seat. Dr. Duncan Stewart, of Calcutta, as early as the "forties" of last century suspected a relationship between the two diseases. Veterinary-Colonel Hallen, the President of the Indian Cattle Plague Commission of 1871, held a similar opinion.

When the cattle plague prevailed in England and on the continent in the eighteenth century it was held by many, especially by M. Vicq D'Azyr and by Dr. Layard, who wrote on the subject in 1756, and again in 1780, "that it was an eruptive fever of the variolous kind." There is also the incident of the vesicle on Mr. Handcock's hand, a veterinary inspector at Uxbridge in London, who accidentally inoculated himself in 1865 when engaged on the post-mortem examination of a bullock which had died from cattle plague. The vesicle was seen by Mr. Rayner, Professor Spooner, Dr. Quain, and Dr. Murchison, who recognised in it the character of the vaccine vesicle. It was also seen by Mr. Ceely, who stated that it corresponded with some of the cases of casual cow-pox in the milkers.

To return, however, to Bengal. I had in mind the experiments of Macpherson at Murshedabad, who in 1832 succeeded in obtaining vaccine by inoculating children with the crusts obtained on the twelfth day from an animal suffering from gotee. He tested the vaccination by inoculating two of the children with small-pox virus, but without producing small-pox. There were also the experiences of Mr. Furnell and Mr. Brown in Bengal, who performed similar experiments with animals suffering from gotee, with the result that not vaccine but small-pox was produced in the children.

During several years' search among gotee animals I had isolated a diplobacillus from some of them, but the opportunity did not allow of me testing them until 1894, when I came across a buffalo suffering from gotee and with the most profuse eruption on head, neck, body, and teats that I had ever seen. The animal a little before its death was shown to several medical men who were asked their opinion as to

the nature of the disease. Their reply was unanimous, that if it had not been a buffalo they would have said the disease it was suffering from was small-pox. With the assistance of Mr. Haffkine, C.I.E., a diplobacterium similar to some of the others previously obtained was isolated. Cultures consisted of rather small diplobacteria, which sometimes had the appearance of diplococci, and occasionally a thick diplobacillus. This is the type of the culture. Circumstances did not permit me to test the cultures of this microbe until some seven to eight weeks after its inoculation, but in November, 1894, I inoculated two calves with different aged subcultures. For convenience of reference the two calves will be called Calf A and Calf B, and they are classed in Series A.

Series A, 1st set.—In Calf A four out of the 14 inoculations became vesicular between the fifth and sixth day. Lymph from these vesicles was transferred to another calf, and in this none out of the 21 developed, but a secondary vesicle appeared on the ninth day, and became a very fine vesicle on the tenth day. The lymph from this vesicle of the tenth day was transferred to a third calf by seven punctures. Vesicles developed at the seat of each puncture, having on the seventh day the appearance of ordinary vaccine vesicles of the sixth day. With this lymph a child was inoculated on the arm and a calf on the abdomen, and both showed good vesicles on the sixth day. The vesicles on the calf and child were declared to be vaccine vesicles by the medical men interested in the proceedings, among whom were Major R. Mitter, I.M.S., Dr. J. Dutta, and Dr. S. B. Ghose, the late Colonel Alexander Crombie, C.B., I.M.S., and Colonel W. G. King, C.I.E., I.M.S., now retired from India and living in England. From the child other children were inoculated and each presented well-developed vaccine vesicles. The lymph was transferred from these to other children and so through a series. The children were later vaccinated with ordinary vaccine lymph, but did not take.

Series A, 2nd set.—Calf B was inoculated in 40 places with cultures, and on the sixth day many of the punctures presented a similar appearance to that usually found on the fourth day in ordinary vaccination, but later they receded and dried up. On the eleventh day two well-developed vesicles appeared, and on the twelfth day a third vesicle. The lymph of the two first was transferred to another calf by 17 punctures, all of which presented good vesicles on the fifth and sixth day and a secondary vesicle appeared on the seventh day. Lymph from these vesicles was transferred to a calf and child. Both showed good vesicles, but on the seventh day a crop of secondary vesicles appeared on the calf and a measly eruption on the child, which faded on the ninth day. From this child a series of children were vaccinated, all showing good vesicles and with no eruption. The children were later vaccinated and all resisted.

This double set of experiments, expanded in various ways, such as retransferring the lymph from the children on to calves, again from calves to children and from children to children, lasted from November, 1894, to February, 1895.

Intermediary set of Series A.—There were some intermediary sets in which fresh cultures were used on calves and mostly raised secondary vesicles, but they were not carried beyond the calves and on to children because of the early appearance of the Indian rinderpest symptoms among them. I do not propose for the present to deal with this subject or with the many experiments made to immunise cattle against this disease. I shall confine my remarks to the effects of the cultivated diplobacterium when inoculated on the skin of calves—viz., the production either of vaccine vesicles at the seat of inoculation maturing on the tenth day, or the appearance of secondary vesicles on the tenth or eleventh day, and to the observation that lymph taken at an earlier period from vesicles at the site of the inoculation acts in a different way. During the months of December, January, and part of February the cultures from the buffalo were subcultured once a week and a new series of experiments (Series B) was begun with the microbe in February, 1895.

Series B.—In order to eliminate the rinderpest factor as much as possible I selected another place for the experiments, and isolated the animals for a period of ten days. This being done, three calves, C, D, and E, were inoculated the same day: C with cultures derived from the lung of the buffalo, D with cultures from the spleen, and E with cultures from the liver. C took ill on the seventh day, and died on the tenth from Indian rinderpest; nothing but a secondary papule appeared on the eighth day.

Series B, 1st Set.—In D a vesicular rash appeared on the left side of its abdomen on the sixth day, seven secondary nodules or papules appeared on the thighs and scrotum on the seventh day, also a small blister patch on the upper gum. The temperature rose to 105° F. on the eighth day, to 106·6° on the ninth day, and the animal had loose motions, yet it continued to feed well. One of the papules became vesicular on the tenth day, and four new papules, two under the armpits and a crop on the buttocks, appeared. The temperature was 106·8° and there was a generally measly rash on the thighs and abdomen. On the eleventh day two other papules became vesicular, but the vesicles were small. From the three secondary vesicles lymph was transferred to another calf, which presented four vesicles on the sixth day, the lymph of which was transferred on the seventh day to two children and a calf. All gave excellent vaccine vesicles, and from these a third series of calves and children were vaccinated. The children were later vaccinated with ordinary vaccine lymph and all resisted. D calf continued ill until the sixteenth day and then gradually recovered.

Series B, 2nd Set.—Calf E had three primary vesicles on the seventh day, but not characteristic. A calf inoculated with their lymph gave small, but unsatisfactory, vesicles. The temperature of calf E rose to 104° F., and there was a vesicular or herpetic rash on the abdomen and thighs. On the eighth day two secondary papules appeared on the abdomen, one of which became a vesicle on the tenth day. This vesicle was well raised and developed on the eleventh day, and its lymph was transferred to another calf which developed excellent vesicles on the fifth day, from which was started a fourth series of successful vaccinations in calves and children. Later the children were vaccinated with vaccine lymph, and all resisted. The temperature of calf E continued high until the eighteenth day, but beyond this there were no signs of illness. It was vaccinated three weeks later but did not take.

In the 1st and 2nd sets of Series B the lymph was transferred from calf to calf and from calves to children, and again from children back to calves.

Series C.—Calf F was inoculated in March with a culture of the microbe kept in hydrogen for 39 days. On the eighth day four conical vesicles appeared at the seat of punctures. They were not umbilicated, but they contained clear lymph, which was transferred to two children, who eight days afterwards showed no sign of having taken, and were therefore vaccinated with ordinary lymph. Three days later one child showed an eruption of 12 papules, which became vesicular on arms, legs, and body, and the other child 30 papules, which also became vesicular. The results were similar to those following inoculation with variolous lymph of a mild type, such as was familiar to Sutton in the eighteenth century. The local vaccination with ordinary lymph failed in both cases.

Calf F remained well and was vaccinated on the fourteenth day. It was then vaccinated with ordinary lymph and was not examined until the fourth day of the vaccination, when this was found to have failed, but the animal had on it a profuse eruption. There were crusts over the left eyebrow and under the right eyelid, also over different parts of the face; also over the ears there were vesicles and pustules very similar to what is seen in cases of small-pox. There were also pustules on the rump. The temperature was 103·2° F. Next day it was 104° and there were loose motions. After this the temperature dropped to normal, and the animal with the exception of its eruption appeared quite well. A calf inoculated with the crusts and with the serum and lymph squeezed out of the crusts had a rise of temperature on the sixth day, an eruption on the neck on the seventh day, slimy motions, sore and ulcerated mouth, and great weakness on the ninth day, and died on the tenth.

Later in the year during the rains I began another series of experiments with the cultures, but with a very curious result, possibly due to some contamination that I was unable to discover. A spurious vesicle was produced on the calves, and this vesicle passed through the several stages of papule, vesicle, crust, and scar. It had at some stages a resemblance to a vaccine vesicle, but its final appearance was flat and more like a blister. It could be transferred from calf to calf, but

not to children, and it did not render the calves immune to vaccination with ordinary lymph, as was the case with the other series. It may be of interest to note here that it is difficult to maintain effective vaccination from calf to calf in Calcutta during the rains, and that natural small-pox in the human being seems to lose much of its infective power at this season of the year.

The results of these observations bring the subject to a more advanced stage than that reached by the experiments made by me in the years 1884 and 1885, when medical officer of health of Aberdeen, and when, owing to the experiments of Chauvau and Klein, the trend of opinion was that it was impossible to produce vaccine by inserting the virus of human small-pox into the cow, that if any vesicle was produced it was a small-pox vesicle, and that the successes of previous experimenters had been due to accidental contamination with vaccine. My experiments then demonstrated that it was possible to produce vaccine by the passage of human small-pox virus through the cow, and that the older experimenters were correct in their observations. I did not publish the results at the time, for I wished to supplement them on a larger scale. The fact, however, that such successful experiments had been made and 1200 children vaccinated from this source was placed before the Royal Commission on Vaccination by Dr. Cory in November, 1889, at the instance of the medical department of the Local Government Board, over which Dr. (afterwards Sir) George Buchanan, K.C.B., presided, and I further added to that information when at the request of the Commission I sent to it an account of my successful experiments in the same direction carried out in India in 1892, and which appeared in their sixth report in 1897. In the meantime Colonel W. G. King, C.I.E., had published his classical experiments done in Madras in 1891, and for which he got into much trouble owing to the view held by the medical department that only small-pox could be produced and that it was impossible to produce vaccine. Since then Copeman, Klein, and Hime in England have also proved its possibility.

The observations recorded in this paper help, I think, among other things, to show that both sets of opponents were correct in their observations, though differing in the interpretation of the results, and that the explanation of the difference lay in the degree of maturity of the vesicle produced at the site of inoculation, or in the production of secondary vesicles. Seventeen years is a long time to elapse between the making of certain observations and their publication, but I was always in hopes of having further opportunities of pursuing the subject. For instance, quite apart from natural small-pox in cattle giving rise to a disease included under the general term of cattle plague or rinderpest, and which under certain circumstances gives rise to vaccinia in man, the animal has yet to be found that exalts the virus and conveys it to man in the form of epidemic variola. I think, however, it is time these observations should be made known beyond the circle of a few friends, in order that others, if opportunity arises, may advance this very important subject. Unable in England to follow up this line of research any further, I recognise that as regards myself so far as this aspect is concerned the chapter is closed. But I have not entirely relinquished the study of vaccinia, and I hope in due course to deal with the problem from a different aspect, aided by the experience already gained.

York-terrace, N.W.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on June 21st, Dr. F. J. Allan being in the chair. The accounts presented showed the business of the society to be steadily growing, a considerable addition to the funds having been made since the beginning of the year. A cordial vote of thanks was unanimously passed to Dr. F. de Havilland Hall, the retiring chairman, now President, for the valuable services that he has rendered to the society during the many years he has been connected with it, and in recognition of Dr. Hall's work it was agreed to present a substantial sum to Epsom College as a permanent record of his services. Prospectuses and all further particulars of the society may be obtained on application to Mr. Bertram Sutton, secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London.

THE EXAMINATION OF DIPHTHERIA SPECIMENS:

A NEW TECHNIQUE IN STAINING WITH TOLUIDIN BLUE.

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(*From the Kent County Bacteriological Laboratory, Maidstone.*)

THE recognition of the bacillus of diphtheria in preparations made from cultures grown from swabs often presents difficulties to the most experienced, and any method of staining by which the characteristic morphological features are accentuated is of value. Still more is this so in connexion with the examination of smears made direct from the swab or the patient's throat.

The value of toluidin blue as a diagnostic stain for the diphtheria bacillus is not sufficiently well known. Diphtheria bacilli stained with a single solution containing this dye and acetic acid in certain proportions show typically as blue organisms with red granules; this is especially well demonstrated if the organisms be mounted in the stain itself in a similar manner to that introduced by Cobbett with methylene blue. I believe, however, that the following method, which I have been using almost exclusively during the past six months, provides a more delicate picture of the bacillus, differentiates it more clearly from the organisms with which it may happen to be associated, and at the same time it is so extremely simple that one cannot well imagine any process easier. It is of great value in examining smears made direct from the throat or a swab, for the diphtheria bacilli take on a characteristic appearance that makes their recognition a far more reliable matter than with the other stains one has been accustomed to use. It follows, therefore, that by this means one is able to give an immediate diagnosis of diphtheria in a larger proportion of the cases of this disease in the acute stage, from the examination of the direct smear alone, without the need of waiting for the result of cultivation. The organisms associated with the condition known as Vincent's angina are also clearly demonstrated.

The method.—The details may be described in a very few words. A film is made on a cover-glass and fixed in the usual way. The stain has the following composition:—toluidin blue (Grubler), 0·02 grm.; glacial acetic acid, 1·0 c.c.; absolute alcohol, 2·0 c.c.; distilled water to 100·0 c.c. A small quantity of the fluid having this composition, is taken up with a platinum loop and dabbed and spread on the film; the cover-slip is then turned over and mounted as a "hanging-drop" preparation,[1] and it is now ready for immediate examination with the 1/12th objective in oil. The examination should be made with a strong *artificial* light—daylight is not suitable. I am accustomed to use a 16 candle-power frosted electric bulb at a distance of from six to eight inches from the mirror. The influence of the thin layer of blue fluid is in the direction of correcting the yellowness of the artificial light.

One or two points must be attended to in order to ensure success. Films should be freshly prepared and thinly spread. Experience soon shows the right amount of stain to place on the film; the drop should be rather shallow—not too deep so that its blue shade cuts off too much of the light, nor so little in amount that there is not sufficient stain for the organisms to become fully saturated. The cells take up the stain practically instantaneously, and the preparation may be examined at once or any time during the next three or four hours; after that there is a tendency for over-staining to take place. It is an advantage that a large number of films can be prepared by an assistant and examined at the leisure of the bacteriologist.

Appearance of organisms so stained.—At first sight a preparation stained in this way will possibly not be regarded as

[1] In this laboratory for all "hanging-drop" preparations, such as in agglutination tests, we use simply a ring of plasticine fixed on the slide, the ring being made by rolling out a tiny ball of the material. We have found such rings may be used over and over again for different specimens. They make a sufficiently air-tight chamber if the slide be pressed gently and evenly down on the cover-slip, and the latter can be removed with forceps in a clean state ready for further staining and mounting if the specimen is required to be kept.

an unqualified success—the appearances are so entirely different from those seen in a film stained in the ordinary way and mounted in Canada balsam. The organisms are plump and glistening, the details of their structure are sharply brought out both in the depth to which they take the stain and the actual colour they take up. When, however, one has become accustomed to the variety of colouring, which may at times be very striking, one recognises the fact that certain kinds of cell stain in a way that is characteristic of their species, and by this they may be identified.

These different methods of taking the stain may be grouped as follows: 1. Certain cells practically do not take the stain at all. These are therefore seen as glistening white bodies. Some kinds of cocci, coccoids, oval cells, and streptococci present this appearance. 2. Some cells take on a blue colour which may be light or dark. One finds certain cocci, micrococci, streptococci, streptobacilli, bacilli, &c., stained in this way. Hoffman's bacillus is included in this group and stains typically a dark blue with a light band. The spirochætæ and fusiform bacilli seen in Vincent's angina also stain dark blue; the spirochætæ are particularly well shown by this method. 3. Some cells take on a red or pink colour. Certain cocci, bacilli, and torulæ often met with are shown thus. B. subtilis, if present, is very conspicuous as a bright pink organism. 4. Some cells whose bodies are stained blue contain metachromatic granules that take on a red or pink shade. In this class one recognises the typical B. diphtheriæ; the body of the bacillus is a pale glistening blue, while situated at different points along its length are bright and often deeply stained red granules. This appearance is extremely characteristic and at once attracts attention by its contrast to the accompanying organisms, which are generally more lightly stained. Some varieties of sarcinæ and yeasts will also be found to stain in this way. Yeasts which are stained a bright blue with red metachromatic markings certainly make the most beautiful objects I have seen with a 1/12th objective. Such organisms as these will not, of course, be confused with B. diphtheriæ, nor will diphtheroid organisms often be met with which give rise to difficulty from the fact that they take the stain in a way that resembles the true diphtheria bacillus.

Application.—This method of staining is very suitable for examining films taken from cultures, but it has a special value for examining smears made direct from the patient's throat or a swab without preliminary cultivation, for in a large proportion of acute cases of the disease, the bacilli, stained in the typical way described above, can be detected; they stand out from all the other organisms, which generally take on a pale mauve or blue tint, almost as distinctly as tubercle bacilli in sputum when stained by the Ziehl-Neelsen method. In fact, one has come to regard the examination of smears made direct from diphtheria swabs in much the same light as one would the examination of films made from the sputum of patients suspected to be suffering from phthisis, and searches the field carefully for the characteristic organism. Very often one may find only a few, perhaps in one clump characteristically arranged, and yet so definite as to make the diagnosis a certainty. I am able to say that at least half the acute cases of diphtheria can be diagnosed immediately in this way, even though one has not taken the swab oneself, and some time has elapsed before it reaches the laboratory. If the film could be made direct from the throat I think a very much larger proportion than this could be diagnosed, but I am not at present in a position to test this. A negative result is, of course, for many reasons not to be considered of much value. In examining cultures one is, as would be expected, sometimes faced with the same difficulties as when other stains are used, from the fact that the bacilli do not assume an appearance which is morphologically characteristic, but I believe the difficulties are largely diminished.

In comparing this with other methods, I would point out that it has the advantage over methylene blue in that it is a double stain and brings into prominence the metachromatic granules if present. All the modifications of Neisser's stain that I have used cannot be relied upon to demonstrate the organism in the direct smear, and, finally, it has the advantage over the ordinary methods of using toluidin blue in that the refractive effect of examining the film in a hanging drop of weak stain seems to be of great value in bringing out the details of structure and thus facilitating diagnosis. In this laboratory we seldom, if ever, find it necessary to have recourse to other methods of staining.

Conclusions.—I would therefore summarise these points as follows: 1. The toluidin hanging drop method here described differentiates B. diphtheriæ from the other organisms in the same film more clearly, I believe, than any other method, because whilst giving a double stain—blue bacilli with red granules—it shows the minute structure of all organisms very distinctly owing to the way in which the stain is taken up and the optical influence of the fluid in which it is examined. 2. It has a special value in demonstrating the organism in a direct smear without preliminary cultivation, as by this means, in a large proportion of acute cases of the disease, a much earlier diagnosis may be made. It also demonstrates the organisms of Vincent's angina if present. 3. It is extraordinarily simple and rapidly carried out, so that in a laboratory where a large number of specimens require to be examined a great saving of time results. 4. As a corollary to the last two points, it follows that any practitioner who can examine films of sputum for the tubercle bacillus may himself make an immediate diagnosis in a large number of instances without having recourse to the outside aid of a bacteriological laboratory or to the use of all the apparatus incidental to the making of cultures.

REMOVAL OF AN INTRATHORACIC THYROID TUMOUR.

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AND
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THE following case illustrates the difficulties which surround the diagnosis of a thyroid tumour when it is hidden away within the thorax, and at the same time what valuable aid can be afforded by the bronchoscope.

The patient was a man, 55 years of age, who, before the illness, had been robust and had enjoyed good health. There was no reason to suspect that anything was wrong until he was awakened in the middle of the night of Oct. 7th, 1909, by a severe attack of coughing and choking which alarmed him greatly. The dyspnœa was severe, and after lasting for about two hours gradually took its departure. On the following day there was a second attack, which was not so alarming. Then the patient was brought to London because it seemed as if tracheotomy might at any time be required. Soon after his arrival he had, in the presence of one of us (C. B. L.), an alarming attack of dyspnœa. The difficulty was inspiratory and the patient made a noise as if he had whooping-cough.

With the help of an anæsthetic given by Mr. Richard Gill a large Parker's tracheotomy tube was put into the trachea. Owing to the depth of the trachea and the venous engorgement this operation was by no means easy. The mucous lining of the trachea bled freely. An enlarged lymphatic gland was felt beneath the lower end of the right sterno-cleido-mastoid muscle. The relief given was considerable, but not quite complete. It seemed as if there were something compressing the trachea below the tracheotomy tube. The use of the tube, too, was rendered difficult by emphysema of the neck and chest. A Koenig's tracheotomy tube, 4½ inches long, was therefore inserted and it answered well. The dangers of suffocation having passed away, it was possible to proceed with a further examination, and complete bilateral abductor paralysis of both vocal cords was discovered. Nothing could be felt in the neck or upper aperture of the thorax. An X ray photograph showed that there was no aneurysm, but gave rise to the suspicion that there might be something of a solid nature in front of the arch of the aorta, and that this was situated towards the left of the sternum. Taking into consideration the large gland felt during the course of the operation, it was reasonable to suspect that this might be a malignant growth, especially as about this time the weight of the patient began to diminish. A course of mercury and iodide of potassium was begun and steadily persevered with. The

general health improved, and at the end of about a month the right vocal cord had a complete range of natural movement. The left vocal cord also moved a little, but the amount of movement varied from day to day. Six weeks after the operation the stridor had almost disappeared, so the tracheotomy tube was removed and the wound speedily closed.

Although the breathing now afforded no grounds for anxiety, yet there was some stridor during inspiration, and evidently the recovery was not complete. The patient was therefore kept under close observation in case further surgical measures should be needed. At the end of six months it was clear that the general condition was by no means satisfactory. The loss of weight now amounted to 3 st., and the heart beats were rapid and very irregular; the patient was nervous, excitable, and could not sleep. There was no dyspnœa, but the stridor on deep inspiration persisted, and there was a constant tendency to cough because of a feeling of something irritating in the trachea beneath the manubrium.

Further efforts were now made to find out the cause of this mysterious illness. The patient was seen by Sir David Ferrier who could ascertain nothing in the central or peripheral nervous system. The paralysis of the right cord had disappeared, but the left was still impaired. Nothing could be seen in the chest with an X ray screen. Although the neck was now thin and easy to palpate, no tumour could be felt. But at this stage one of us (W. D. H.) suggested the possibility of an intrathoracic thyroid tumour pressing upon the trachea. About the same time an observation was made which in some degree confirmed this hypothesis, for it was found that on pressing underneath the posterior border of the left sterno-cleido-mastoid muscle the stridor became more noticeable, and by increasing the pressure a return of the dyspnœa could be brought about. A second anæsthetic was therefore administered by Mr. Richard Gill, and when the bronchoscope was passed into the trachea a stenosis was seen at the level of the suprasternal notch. The long axis of this was from before backwards, and it looked not unlike a second glottis. Clearly it was not caused by an organic stricture of the walls of the trachea itself, but by something pressing upon the trachea from outside, because it was very easily overcome as the bronchoscope was passed onwards. That which was pressing upon the trachea could not be felt, although the anæsthetic given by Mr. Gill afforded a favourable opportunity. Nothing further was done on this occasion, but a week latter we performed an exploratory operation to try to find out the cause of the stricture. This was begun under local anæsthesia produced by a 1 per cent. solution of novocaine. A transverse incision 4½ inches long was made at the upper border of the sternum. The sterno-thyroid muscles were retracted and an enlarged left lobe of the thyroid gland was found protruding through the upper aperture of the thorax. The upper limit of this was above the sterno-clavicular articulation and under the left sterno-mastoid tendon. This part of the tumour was relatively small, the main bulk being situated within the thorax, whence it was dislodged. On account of some difficulty in breathing this had to be done quickly. There was very little bleeding. The breathing at once became easier, and owing to the highly nervous condition of the patient a general anæsthetic was administered before the remaining steps of the operation were completed. A drain was left to provide for oozing.

The patient made a slow recovery. For some weeks the pulse continued feeble and irregular, but at last strength was regained and at the end of three months the normal body weight had been recovered. Although the abductor paralysis had entirely disappeared there was still a little stridor on deep inspiration due to a slight alteration in the shape of the left side of the trachea, but 18 months later the patient wrote saying that he considered himself to be quite well. The tumour after removal was found to be a cystic adenoma, 4½ inches long, 2 inches broad, and weighing 2½ ounces after considerable loss of fluid. It has been placed in the museum of St. Bartholomew's Hospital.

In the diagnosis of this rare and unusual case we were greatly aided by the use of the bronchoscope, for it indicated clearly the presence of a tumour compressing the side of the trachea. As might have been expected, the X ray examinations gave less assistance, for although in the first there was a faint shadow of something in front of the arch of the aorta and to the left of it, nevertheless the second did not afford confirmatory evidence. However, the X ray examination was of negative value, for it excluded the presence of an aneurysm.

The bilateral abductor paralysis was a very interesting feature of the case. Apparently its onset was sudden and brought about by the swelling of the tumour which was lodged within the upper aperture of the thorax; and it is noteworthy that after the tracheotomy the right vocal cord was the first to recover and that it had its full range of movement within a month. The left, on the other hand, recovered slowly and did not move freely until two months after the removal of the tumour.

Mr. J. M. Nicholls, of St. Ives, has kindly ascertained that this patient's weight is now (June, 1912) normal (14 st.). He still suffers from nervous irritability and tachyeardia. There has been no dyspnœa since the removal of the tumour more than two years ago and the vocal cords are widely abducted. He can produce a stridor at will by contracting the laryngeal muscles, but there is no sign whatever of any narrowing of the trachea. A Wassermann's test was negative.

A BLOOD PUZZLE SOLVED.

THE SO-CALLED X BODIES.

BY ANDREW BALFOUR, M.D., B.Sc. EDIN., F.R.C.P. EDIN., D.P.H. CAMB.,

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THE object of this short note is to draw attention to an interesting and useful paper [1] by Chamberlain and Vedder in which these observers show that the so-called X bodies which have been found in smears of human and other blood are, in reality, of the nature of artefacts in the glass slides on which the blood films are made. Such artefacts are probably more common in old slides that have been kept for some time in the tropics.

Since reading the paper by Chamberlain and Vedder, which should be consulted for details, I have been on the look out for the X bodies, and eventually succeeded in finding a slide showing a fair number of the smaller variety. Thereupon I repeated the washing experiment which Chamberlain and Vedder describe, and as a result can confirm their opinion as to the true nature of the bodies.

In my first paper [2] on the subject when I found them connected with a case of urticaria I expressed no opinion about them, but certainly thought they were derived either from the skin or the blood. In a subsequent paper [3] I recorded them as occurring in various conditions, and mentioned that my senior laboratory assistant had pointed out that they were to be found beyond what may be called the "commencement end" of the blood film. This seemed to put the blood wholly out of account. I must confess that neither I nor anyone in the laboratory here thought of their being artefacts in the slides. Doubtless what helped to prevent any idea of this kind entering our heads was the fact that they were sometimes found overlapping the red cells. This appearance was also noted by Chamberlain and Vedder, who seek to explain it by an ingenious hypothesis which is presumably correct. Further, the X bodies are quite unlike the usual fallacies associated with flaws in glass slides, and with which most hæmatologists must be quite familiar. I think very considerable credit is due to these two observers for clearing up one of the many blood puzzles which trouble tropical workers. Doubtless the explanation is very simple, and perhaps the various people, including myself, who have been misled should have been more wide awake, but only those who have had practical experience of these difficulties realise how easy it is to err. In any case this discovery is a good example of the necessity for testing not only our reagents but our tools.

[1] W. P. Chamberlain and E. B. Vedder (November, 1911): The So-called X Bodies as Artefacts in Glass Slides, the Philippine Journal of Science, vol. vi., No. 5, p. 421.

[2] THE LANCET, Feb. 4th, 1911, p. 286.

[3] Fourth Report, Wellcome Tropical Research Laboratories, 1912, Vol. A, Medical.

and of approaching all blood problems with an unbiassed mind.

As the journal in which the above-mentioned article appears is not likely to be seen by the majority of those interested I thought it well to direct attention to it in your columns, especially as I have been able to confirm the findings and as my first paper on the subject appeared in THE LANCET.

Khartoum.

ULTRA-VIOLET LIGHT IN THE TREATMENT OF ALOPECIA.

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THE ultra-violet light made use of in the following cases was obtained from iron electrodes between which sparks were discharging from an oil condenser attached to a 10-inch coil actuated by 24-volt accumulator batteries giving 5 to 7 ampères in the coil primary.

The plan of treatment was practically that recommended by Dr. Kromayer, but as the current available for this treatment was so small the sittings were much prolonged and each place was subjected to half an hour's exposure. The skin was separated from the quartz compressor by solid ice cut in squares of convenient size, about three-quarters of an inch thick. It was renewed as often as it melted, and the metallic oxide on the inner surface of the quartz wiped away at the same time. Good reaction with peeling of the skin followed, the hyperæmia lasting a week as a rule, but occasionally longer. A second administration was not given until most of the hyperæmia had disappeared. In the totalis cases tracts were chosen for treatment that could again be found easily, such as the frontal, parietal, or occipital tract corresponding to the bones of those names. When the tract became painfully hyperæmic it was given rest, whilst another was similarly treated. When the hair began to grow the treatment was still continued until it became about half an inch long. In the areata cases it was noticed that the hair usually spread in from the periphery towards the centre, so that the space became gradually smaller.

Many of the cases were long and tedious ones which had undergone topical treatment with all the usual remedies before coming to the electrical department. It was considered advisable to continue a mercurial lotion and an acetic acid lotion unless they caused irritation. These lotions were regarded in the nature of a placebo for the portions of the scalp which could not be treated by means of the ultra-violet light rays. The cases treated were nine in number, as follows:—

No. of case.	Sex.	Age.	Complaint.	Duration of treatment.	Result.
1	F.	12	Alopecia areata.	13 months.	Cured.
2	M.	24	,, totalis.	4 ,,	No result.
3	F.	19	,, ,,	13 ,,	,,
4	M.	4	,, areata.	5 ,,	Cured.
5	M.	15	,, ,,	4 ,,	,,
6	F.	22	,, ,,	3 weeks.	Hair growing.
7	M.	25	,, ,,	3 ,,	Cured.
8	F.	19	,, ,,	3 months.	,,
9	F.	15	,, totalis capitis only.	11 ,,	,,

Case 6 should be regarded as cured, for the hair, which had been quite at a standstill, began to grow almost directly this treatment was commenced. She was anxious to go home. Case 7 was one of those in which alopecia seems to follow ringworm. On commencing the treatment the hair began to grow, to the great relief of the parents, who feared permanent patchy baldness. No X rays had been used. Case 9 was the most striking of all, being total to the scalp only. The eyebrows and lashes were never completely lost, nor the armpit or pubic hair at all, yet her scalp became clothed with thick and long hair. After remaining well for quite six months she has just now returned with one or two areata patches.

It would seem from the report of Dr. Kromayer and the above that this form of treatment is quite worthy of an extended trial.

Exeter.

AN UNUSUAL CASE OF PROLONGED FEVER PRESENTING ACUTE HEPATIC CHANGES.

BY H. GWYNNE LAWRENCE, M.B. LOND.

THE subject of the following notes was under observation for ten months. For the first six months he presented very little in the way of physical signs, although throughout this period he was the subject of marked fever, at first intermittent with definite periods of apyrexia, but latterly remittent, and finally continuous.

The patient, aged 62 years, 15 years ago resided in India for five years without any detriment. Two years ago he had an attack of tachycardia which passed off in a short period, and for three years he had suffered from an annual febrile attack believed to be influenza. No evidence was obtainable of alcoholic or dietetic excesses. The only other important detail upon which he laid much stress was the fact that all his life any form of aperient upset him profoundly, as did also enemata. For the first six months symptoms other than could be attributed to the fever were completely absent. During the last four months clinical signs of cirrhosis of the liver appeared. In the earliest days a bad night would be followed by a tongue thickly coated with a brown moist fur, the breath would be "heavy," the skin dry and hot, the face slightly yellow-tinted, and occasionally some flatulent distension of the colon could be recognised. The temperature rose at 6 P.M. daily to 102° F., or rather higher, and was at the normal line again at 6 A.M. This continued for a period of from 10 to 14 days, when a similar period of apyrexia occurred, and the patient became comfortable, and the tongue cleaned to a great extent, but not absolutely. Conspicuous features at the height of the fever were the facts that the pulse was little disturbed and rarely exceeded 62 in frequency, and that the respirations remained at 20 to 24. The skin was hot and dry, the bowels acted well or only required gentle stimulation, and no after-symptoms—e.g., headache, &c.—were experienced.

Blood examinations showed a marked leucopenia. The red cells were practically normal in amount, with some deterioration in hæmoglobin; white cells 2300 per c.mm. Agglutination tests to enteric and Mediterranean fever were negative, as was also Wassermann's reaction. Blood cultures proved negative on all occasions. Treatment was directed against pyorrhœa alveolaris which was present, but only temporary improvement of this condition occurred, and the course of the main disease was absolutely uninfluenced. This state continued for six months. The liver became gradually more and more displaced upwards by the abdominal distension, the upper margin eventually reaching the fifth rib in the vertical nipple line. During this period occasionally a slimy mucous stool, offensive in character, was passed, and an occasional attack of short duration of tachycardia occurred. In the apyrexial period the appetite was good, the general nutrition improved, and there was a complete absence of symptoms.

At the sixth month ascites began to develop and the abdominal distension was a continuous feature. The base of the right lung showed signs of compression; the skin became yellowish in tint and showed loss of elasticity. The evidence at this period, from a clinical point of view, suggested the cardinal signs of cirrhosis of the liver—jaundice, ascites, and a liver apparently (by X ray examination) of normal contour, but rather smaller than normal. With this the spleen could be felt at the rib margin, and some discomfort was experienced over the splenic area. At this stage the blood cultures again proved negative and the leucocyte count amounted to 1716 per c.mm. The differential count was: polymorphonuclear, 41 per cent.; mononuclear, 25 per cent.; lymphocytes, 32·62 per cent.; eosinophiles, 1·38 per cent. For a short interval acute pain was experienced at the point of the left shoulder, in the region supplied by the fourth cervical nerve.

For the last two months the temperature remained

constant, generally reaching 103° at 6 P.M. The pulse was little affected as regards frequency until cardiac weakness appeared in the last few weeks. Fæcal examinations showed an unusual number of microbic elements and an unusual type of coliform bacillus, but the food elements were digested. In the later periods fats were not digested and bile was deficient. Urobilin was in excess in the urine. Intestinal antiseptics—e.g., salol, paraffin, &c.—were administered from the start, but produced no benefit.

Necropsy.—A post-mortem examination by Dr. B. H. Spilsbury showed the following condition:—*External.*—There was some œdema of the lower extremities and scrotum. The abdomen was rather distended. *Internal.*—Heart: All cavities dilated. Muscle showed microscopically marked brown atrophy. Lungs: Partly compressed by diaphragm. They also showed passive congestion and emphysema. Peritoneum contained 3 to 5 pints of clear ascitic fluid.

Liver: Of about normal size, but increased weight. There was some surface irregularity, but little thickening of capsule. On section the organ was very firm and dry. The cut surface had a mottled appearance, reddish and grey areas alternating. The organ did not appear greasy. No fibrous network could be detected with certainty. The gall-bladder was normal and contained a pale and watery bile. Bile-ducts normal. Microscopically the organ is traversed by numerous broad, and in places interlacing, areas in which the liver cells are undergoing atrophy and many have disappeared, the wide spaces between the cells being occupied by greatly dilated blood capillaries (which are not easily seen owing to post-mortem changes). In the meshes of this interlacing network are islands of liver cells which exhibit marked hypertrophic changes, the cells being of large size and staining deeply, and some having two nuclei apiece. These changes are not very regularly disposed, but the atrophic areas appear to be chiefly in the central, and the hypertrophic chiefly in the peripheral, zones of the lobules. All the liver cells contain some excess of pigment. Fatty infiltration is exhibited by some of the hypertrophied cells, but the atrophied cells contain no fat. There is a little recent fibrous thickening of the capsule, but none of the portal areas except around some of the larger bile-ducts; there is, however, some thickening of the walls of the hepatic vein tributaries. There is no myxomatous degeneration in the organ. There is practically no round-celled infiltration of the organ, and nothing to suggest an infective process. There is no true cirrhosis or biliary cirrhosis, but a widespread atrophy associated with processes of compensatory hypertrophy—a condition of subacute hepatitis probably of toxic origin.

Spleen: Much enlarged, about 20 oz. in weight. Microscopically it showed advanced passive congestion. Smears from the spleen were examined for micro-organisms and malarial parasites, but without success. The blood in the organ showed, however, very marked anæmic changes of the red corpuscle with numerous nucleated red cells. Kidneys: Somewhat enlarged, but healthy. Urine highly coloured. Other abdominal organs normal.

The clinical features of a marked rise in temperature, remittent in type, and a definite leucopenia with evidences of gastro-intestinal catarrh, made a diagnosis uncertain during the early stages owing to the conspicuous fever present. The acute destruction of liver cells and the condition of acute cirrhosis make it of particular interest pathologically. Investigations of a most thorough nature by Dr. T. J. Horder and Dr. J. Matthews failed to find any bacterial infection in the blood during the various stages, and possibly we should be right, in view of the slight constitutional disturbance apart from temperature, in regarding the poison as being of a chemical nature.

Green-street, W.

MEMORIAL TO MISS ROSA MORISON.—The friends of the late Miss Rosa Morison (lady superintendent of women students at University College, London, 1883–1912), desire to raise a memorial as a tribute of the affection and respect in which they held her, and as a means of commemorating her work in connexion with the higher education of women. Those who wish to take part in this memorial should communicate with the honorary secretaries, Rosa Morison Memorial Committee, University College, Gower-street, London, W.C.

Reviews and Notices of Books.

Pathology, General and Special, for Students of Medicine. By R. TANNER HEWLETT, M.D. Lond., F.R.C.P. Lond., D.P.H. R.C.P.S., Professor of Bacteriology in the University of London. Third edition. London: J. and A. Churchill. Pp. 610. Price 10*s.* 6*d.* net.

Dr. Hewlett's "Pathology, General and Special," bears on its title page the modest claim "for students of medicine." It is no easy task, even when a volume, handy in form and well printed, reaches a third edition, to give a concise account of such an extensive subject as modern pathology in all its aspects. The author in the text has, we think, struck the happy mean for a student's text-book. Most medical students are content with such a knowledge of this subject as will aid them in the art of healing. In medical schools, as a rule, a certain portion of one year only is given to acquiring a knowledge of this subject. In some cases post-mortem room work bulks more largely than the actual pathological vital changes that accompany disease. These facts have dictated the scope of the work. Professor Hewlett has made free use of the ordinary text-books in English, while in the text there are footnote references to certain papers in the journals, practically all English. It may be taken that the average student does not refer to the French or German books or papers on this subject, so that the introduction of foreign references can well be spared.

Five years have elapsed since the second edition was issued, and much progress has been made, and consequently the treatment of such subjects as the etiology of neoplasms, immunity, the ductless glands, paroxysmal hæmoglobinuria and epidemic poliomyelitis has been enlarged, while new sections have been added on the Wassermann reaction, complement fixation, and anaphylaxis. But the general scope and arrangement of the work are the same as in the previous editions. The illustrations, which are all in black and white and of microscopical subjects, are presented in 32 plates and some figures in the text, while the text is arranged in 19 chapters, which do not seem to follow any very logical order—for example, the ductless glands and internal secretions take a comparatively early place, while Mendelism is introduced on the third page. Is the statement on p. 90 as to the relation between a sharp, clean, aseptic knife and union by first intention a complete statement of truth? We think not. What about the condition of the skin incised? As to Mediterranean fever, the author's account of its pathology seems to point to no practical result. Bernard did not forget to state, as the author does, the importance of previous feeding with carbohydrates in his famous *piqûre* experiment. In connexion with the pituitary body we miss Ott's observation on its action as a galactagogue. Instead of "comparatively recently," why not give the exact date when the relation between the pancreas and diabetes was discovered by experiment? Gley's name seems to be omitted in connexion with the thyroid and parathyroids, nor did we find a reference to Chalmers Watson's work. It should be made clear which of the gases of the blood escapes during too rapid decompression in caisson disease.

We have cited a few directions in which we think that in future editions Professor Hewlett might improve his work, not with any desire to be captious, but because it is such a good book. He has given a readable condensed epitome of his subject largely as it is seen through English eyes, and the scope of the work is so exactly what should appeal to practical teachers that it would be worth while to remove all small blemishes as far as possible.

Service Memories. By Surgeon-General Sir A. D. HOME, V.C., K.C.B. Edited by Brevet-Colonel C. H. MELVILLE, A.M.S. London: Edward Arnold. 1912. Pp. 340. Price 12*s.* 6*d.* net.

THE long and distinguished career of the author of this book of reminiscences is one well deserving of permanent record. Sir Anthony Home wrote his reminiscences, as we are told in the preface, at the instance of a brother officer, without any view to their publication; and it was only after much persuasion that he gave his consent to their being given forth to the world at large, on the understanding that any profits should be devoted to some charitable fund connected with the Royal Army Medical Corps.

From 1848, when Assistant Surgeon Home was gazetted to the 3rd West India Regiment, to 1886, when as surgeon-general he retired from the Army Medical Service, is a long period, and there can have been few officers who have had a more varied and interesting career. Commencing his service in the West Indies, and then doing duty in Ireland and Gibraltar, he served throughout the Crimean war. After a short spell at home he embarked for China, but was diverted to Calcutta, owing to the outbreak of the Indian Mutiny. Here he took part in Havelock's relief of Lucknow, and the subsequent blockade of the relieving force itself in the Residency until Colin Campbell's arrival two months later. After a year and a half at home Staff-Surgeon Home embarked for China with Sir Hope Grant's expeditionary force at the end of 1859, and at the conclusion of hostilities returned to England for another few months, after which he proceeded to Canada with the troops despatched on account of the *Treat* affair in 1861. Again a few months at home, and in 1863 he went to India, whence he was sent to New Zealand for the Maori expedition of 1864. He was principal medical officer to Sir Garnet (now Lord) Wolseley's force in the Ashanti war, and afterwards held high administrative posts in India and at home until his retirement in 1886.

This bare recital of places and dates shows how varied has been this distinguished officer's experience. The narrative is written in the simplest and most straightforward way, without any adornment of style (though enlivened with many an apt quotation), but on nearly every page it gives evidence of the author's keen observation and sound judgment. It shows the variety of experience and large opportunity of seeing the world that fall to the lot of our military service. The episodes of Sir Anthony Home's work before and after Sebastopol, and of the terrible time at Lucknow, though not differing materially from scores of similar narratives that have been previously published, from their simplicity and the absence of any writing for effect, are footnotes to history of permanent value. The experiences in China, Canada, and New Zealand, though not so exciting, relate to affairs less widely known. It is needless to say that the author makes no allusion to his own gallant deeds that won for him the cross "For Valour" at Lucknow. The editor has added the account from the *London Gazette*, detailing the "persevering bravery and admirable conduct" of Surgeon A. D. Home. He was left behind the column when Havelock forced his way into the Residency. The little party were driven into a house, which they defended till it was set on fire. They then retreated to a shed, which they defended for 24 hours longer. At the last "only six men and Mr. Home remained to fire." To Mr. Home's exertions "the safety of any of the wounded, and the successful defence, is mainly to be attributed." The survivors of those events of 55 years ago are now a fast-diminishing little band, and all Sir Anthony Home's readers are indebted to him for his plain unvarnished tale of "old unhappy far off things, and battles long ago."

One or two statements in this book may be noted from a medical standpoint. Sir Anthony Home speaks in the highest terms of the Indian sick transport arrangements by doolies: "The doolie system never breaks down; no bearer parties are wanted with it—the doolie is carried to the wounded, not the wounded man to the doolie." The subordinate medical service in India is also highly spoken of: "It was seldom that their resourcefulness did not adequately meet unforeseen emergencies." Both in the Crimea and in India it is remarked that men and officers alike craved for marmalade or jam, showing distinctly how useful and sustaining these articles of diet are. Yet their issue in more recent expeditions has sometimes been cavilled at. The China war of 1860 is said to have been undertaken to enforce on China "the views of our Government in relation to some disputed point about opium importation," which seems rather an inadequate expression. It is, however, an incident in British policy not particularly agreeable to look back on.

We have to thank author and editor for an interesting and valuable record. A portrait of the author is prefixed.

Infectious Diseases and their Preventive Treatment. By E. C. SEATON, M.D. Lond., F.R.C.P. Lond. London: University of London Press, Hodder and Stoughton. Pp. 210. Price 7*s.* 6*d.* net.

THE appearance from the University of London Press of Dr. Seaton's Chadwick Lectures of last year will be widely welcomed. Dr. Seaton was in early life closely associated by personal circumstances with the sanitary reformers of Chadwick's time—a tribute to their memory appropriately introduces the volume—and in these lectures on the prevention of infectious diseases in this country he has dealt with the evolution of present-day conditions from those of the Chadwick period, while his discussion of probable developments in the future is grounded on a keen appreciation of the lessons of the past.

Historical treatment is particularly necessary if we are to take stock of the present position of preventive medicine, and to realise how it is that with the growth of our local government the public health service has frequently tended to develop its organised activities along certain highly specialised lines, and has sometimes been forced into too narrow grooves. Examples are easily found in connexion with the prevention of those infectious diseases which traditionally rank as of first importance in the practical work of medical officers of health. Dr. Seaton shows us how organisations have grown up for the hospital isolation of scarlet fever, which often, as in London, are elaborated to such a degree that almost every notified case is expected by public health authorities and by the public to be sent to hospital as a matter of course, while diseases that take a higher toll of life and are no less infectious, measles and whooping-cough for instance, are only now beginning to receive their share of hospital beds, or, indeed, any other form of attention from local councils or their health departments. The author's own views of the present practice of scarlet fever isolation are, we think, eminently sound; hospital treatment cannot be dispensed with, but it has no doubt been overdone to the extent of absorbing money which might have been more usefully employed in other preventive measures, or of excluding from hospital treatment cases of other infectious diseases which could more profitably be admitted. "The selection of cases," he urges, "in which most advantage may be obtained by removal to hospital must be left far more to the judgment and decision of the medical officer of health than hitherto." Many examples in the case of both scarlet fever and diphtheria might be quoted to show the necessity for change in our administrative system in this respect.

It is well, also, to be reminded by the history of English

preventive medicine of the danger of rating too highly any one method of prevention of disease, such as, to take a modern example, the dispensary or institutional treatment of individual cases of pulmonary tuberculosis. "The phrase *stamping out*, as applied to infectious diseases, was far too commonly used," says Dr. Seaton, "when medical officers of health came into existence in 1872." No doubt it was then often expected that scarlet fever would be eliminated by a generation of strict hospital isolation and home disinfection. Similarly, in 1894 there were many who anticipated a like rapid disappearance of diphtheria from the discovery of the diphtheria bacillus and diphtheria antitoxin. Both scarlet fever and diphtheria are still with us, and it is no reproach to isolation hospitals or to antitoxin that they do not furnish the complete defensive armament against the disease which we require. New weapons have to be forged as new facts of epidemiology come to light.

Dr. Seaton's observations on the adaptability of isolation hospitals for different purposes are based on a wide experience, particularly in the county of Surrey. He fully approves of their use for tuberculosis, and advocates central organisation to enable the various hospitals in a county to be efficiently and economically used for the common good. In this matter he has set a useful example by obtaining, not without difficulty, a central small-pox hospital for the whole of Surrey, thereby setting free local hospitals for other work. As regards phthisis, Dr. Seaton recognises that the experience already gained of the value of institutional and other treatment directed to the prevention of infection makes it imperative that public authorities should make active progress on these lines, but he insists at the same time on the great importance of thorough and continuous investigations, such as those of the late Dr. Bulstrode, to determine the extent and significance of the effect which such measures produce, and he carefully reviews many of the different considerations which should guide public health administration in combating tuberculosis. In this and other matters the book should be read to appreciate its quality, and we would commend it particularly to men who have recently entered the field of public health work and wish to find some modern problems discussed from such extended experience and with so much breadth of outlook as Dr. Seaton brings to them. It should be added that the lectures and the numerous diagrams included in the volume incorporate much useful information on the epidemiology of the diseases with which they deal.

Pellagra, an American Problem. By GEORGE M. NILES, M.D., Professor of Gastro-Enterology and Therapeutics in the Atlanta Medical School. London and Philadelphia: W. B. Saunders Company. 1912. Pp. 253, with numerous illustrations. Price 13*s.* net.

THERE is now some evidence that pellagra prevails in the United States of America to a far wider extent than was formerly supposed. At least 35 of the States in the Union have lately admitted the presence of the disease in their midst, and anxiety has been expressed lest the ravages of the malady should become more widely diffused.

Professor M. Niles, who in his capacity of hospital physician in the city of Atlanta, Georgia, which State seems so far to have had more cases of pellagra than any of the others, has had considerable experience of the disease, and has collected a large amount of information on the subject from various sources. He has been moved to publish this material in book form, incorporating in it his own views and convictions. In his preface he expresses the hope that American investigators will endeavour to out-distance their European brethren and throw fresh light upon the as yet unsolved problems connected with the etiology and pathology of pellagra. In defining the disease he ignores the laconic description sometimes adopted by his fellow countrymen, who speak of pellagra as the disease of the three "d's" (dermatitis, diarrhœa, and dementia), and defines it in more roundabout fashion as "an endemic malady characterised by an erythema, generally symmetrical, upon the exposed parts of the body; by gastro-intestinal disturbance, and by nervous and psychic phenomena." Professor Niles gives a good summary of the many theories which have been put forward at one time or another to account for the origin of pellagra, including those which attribute it to a bacterial, a toxic, or an autotoxic cause. Dr. Sambon's views as to the simulium reptans being the transmitting agent of the parasite to man are fully set out along with the rest. Professor Niles admits that up to the present the etiology of pellagra is still an unsolved problem, but it appears that he is inclined to take his place among those who regard maize with suspicion. He concludes his chapter on the etiology of pellagra by reiterating the theory of Lombroso in that observer's own words: "In pellagra we are dealing with an intoxication produced by poisons developed in spoiled corn through the action of certain micro-organisms which are in themselves harmless to man."

At a time when many workers are investigating the disease and searching to discover its specific organism, if such there be, Professor Niles's volume should prove of service, giving as it does a fair summary of the present state of our knowledge of the subject. In a series of chapters he treats separately the history and geographical distribution of pellagra, its etiology, pathology, symptomatology and clinical course, diagnosis, prognosis, treatment and prophylaxis. A special concluding chapter is devoted to a summary of the results of recent experiments on animals, and the deductions that may be drawn therefrom, prominence being given to the work of Raubitschek, who concluded that there was no basis for a parasitic etiology of pellagra. Due mention is made of the work done respecting this disease by Dr. C. H. Lavinder, and of the experiments of Dr. John F. Anderson and Dr. Joseph Goldberger, of the United States Public Health and Marine Hospital Service. The volume is profusely illustrated, many photographs of patients in various stages of the disease being given. There is a general index, and also one of authors. Those who are seeking for information upon pellagra will find Professor Niles's book very helpful.

Vorlesungen über Frauenkrankheiten aus der Praxis für die Praxis. Von Dr. KARL ABEL, Spezialarzt für Gynäkologie und Geburtshilfe in Berlin. Mit 93 teils farbigen Abbildungen. Berlin: Oscar Coblentz. 1912. Pp. xiv.-583. Price 14 marks.

THIS work is the reprint of a series of lectures on diseases of women which Dr. Abel has been in the habit of giving for some years past. It includes a fairly comprehensive summary of the various diseases of the pelvic organs, and the author has also included chapters on such important subjects as abortion and its treatment and appendicitis. In discussing the latter we think he has set a good example, as undoubtedly cases of appendicitis not infrequently simulate cases of pelvic peritonitis, or the former condition may complicate the latter and render a correct diagnosis almost impossible.

Dr. Abel's teaching is on sound principles, and he gives a great deal of valuable information. The thoroughness with which he discusses the points is shown by the fact that he describes the method of staining and recognising the spirochæta pallida and the serum diagnosis of syphilis, and also devotes a short section to the examination of the blood. We notice that he retains the old classification of endometritis, and includes under this heading many cases which

we should be inclined to regard as merely instances of chronic congestion of the uterus; for example, erosions, chronic cervical catarrh, mucous polypi, and eversion of the cervical mucous membrane are all included under the heading of inflammation of the uterus. The author is apparently in favour of early operation in cases of myomata of the uterus, but does not entirely agree with the advice to practise an extensive abdominal operation for all cases of carcinoma of the cervix. He maintains, and in this he would have the support of many gynæcologists, that in a case of early carcinoma limited to one or other of the lips of the cervix an extended vaginal operation will give as good results as an extended abdominal operation. He gives a very interesting illustration of a small collection of carcinomatous cells in a vein at some distance from the primary growth, and apparently in tissue which to physical examination was quite free from any trace of growth. It is, of course, quite true that a very early case of carcinoma will probably remain free from recurrence whatever operation, if complete, is performed, and naturally the immediate risk of a vaginal operation is considerably less than that of the extended abdominal operation; but at the same time it is probable that for any other than the very early cases Wertheim's operation will give the best ultimate results when large numbers of cases are considered. The chapters dealing with diseases of the Fallopian tubes and ovaries are comprehensive. The treatment of abortion is very fully discussed, and it would appear that Dr. Abel countenances the induction of artificial abortion in a number of conditions in which many obstetricians would not practise it—for example, in myomata of the uterus, carcinoma of the uterus, chronic diseases of the kidney, incarceration of the retroverted gravid uterus, and tumours of the ovaries or of the vagina. There is an appendix giving a number of prescriptions and formulas and a list of spas suitable for the treatment of diseases of women.

This book should prove useful to those for whom it is written, for it contains a large amount of information in a relatively small compass.

Immunity, Methods of Diagnosis and Therapy and their Practical Application. By Dr. JULIUS CITRON, Assistant at the University Clinic of Berlin, II. Medical Division. Translated from the German and edited by A. L. GARBAT, M.D.; Assistant Pathologist, German Hospital, New York. Philadelphia: P. Blakiston's Sons and Co. 1912. Pp. 209. Price $3.

THE object which Dr. Citron proposed to himself in writing this book was to present the facts of immunity and the practical procedures based upon them in a manner intelligible to the practitioner who has no time to study the longer treatises on the subject. After a short introduction explanatory of the general theory of immunity, and a chapter on laboratory equipment and methods, the subject of active immunisation is dealt with and the problem of aggressins is discussed. Two chapters are devoted to tuberculin diagnosis and treatment, and three to toxins and antitoxins, including snake venom and ferments. The next three chapters deal with agglutinins, precipitins, and bacteriolysins and hæmolysins, and the two following with complement fixation and Wassermann's reaction. A chapter is devoted to phagocytosis, including opsonins and bacteriotropins. The last chapter contains a discussion of passive immunity and serum therapeutics. There is an index of subjects and of authors quoted; actual references to papers alluded to are not given in the text. Illustrations of apparatus and methods are supplied when necessary, and some coloured plates appear at the end of the book illustrative of Calmette's and von Pirquet's reactions and of Wassermann's test.

The book is a very complete presentation of the subject with which it deals, written by one who is himself an acknowledged authority in the matter. The translation is usually intelligible, but we are never able to forget that we are reading a translation from the German. Such phrases as "cholera suspicious colonies," "hæmolysin presence," and "aqueous tuberculin Maraglianos," can scarcely pass, even as American; while we have vainly tried to discover the meaning of the expression "two identically different toxins." "Obtention" as the noun corresponding with the verb "to obtain" is also novel. The publishers have done their part well, and the print and get-up of the book are good.

A Synopsis of Surgery. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., Assistant Surgeon to the Bristol General Hospital, &c. Third edition, revised and illustrated. Bristol: John Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co. 1911. Pp. 585. Price 9*s.* 6*d.* net.

ONLY 18 months have elapsed between the appearance of the second and the issue of the third edition, and therefore there has been little need for any great alterations. Still, the author has endeavoured by many small changes to bring the work thoroughly up to date. This little book has never pretended to be more than a synopsis of surgery, and therefore it has had a recognised place in the study of this subject, and from our knowledge of its many excellencies we are not at all surprised that it has met with much success. For a student to employ it as a text-book would be very unwise, but when the student has studied his subject in one of the many valuable treatises on surgery now extant he can derive much benefit from this work, which will help him to digest the knowledge he has acquired and to fill up any lacunæ that may remain. The short abrupt style will enable the student to see almost at a glance the main points in the subject, and to recognise where his knowledge is faulty. We think the book will regularly receive the approval of the medical public if it continues on its present lines.

Practical Electro-therapeutics and X Ray Therapy. By J. M. MARTIN, M.D., Professor of Electro-therapeutics, Baylor University, Texas, &c. London: George Keener and Co. 1912. Pp. 446. Price 18*s.* net.

THIS is a very clearly written and practical handbook on medical electricity and radiology. The author has provided many illustrations, all or nearly all of them original; he does not weary us with frequent references to appliances of his own design—a fault common to many publications that emanate from the other side of the Atlantic. Some of the author's devices are very handy and convenient, especially in the X ray portion of the work. On p. 106 is shown a very simple form of tube-rack that meets all requirements, and his method of storing and filing X ray plates is distinctly good. On the whole the book is not overweighted with unnecessary material, but we think the time has come when very much of what is found in the introductory chapters of this and many other books on the same subject might be left out with advantage. The section of elementary physics would be better learnt from a separate work, along with attendance in a physical laboratory.

The descriptions of the various methods of treatment are given very clearly and illustrated with original drawings in many instances. As to results, the author describes several cases before and after treatment with the X rays, especially in cutaneous epithelioma, which seems to be comparatively common in America. The author has great faith in the future of electricity in the treatment of

diseases of the nervous system, but it appears that much remains to be done before his ideas can be realised.

The latter part of the work is devoted to the use of the X ray in diagnosis, and is illustrated with many skiagrams, which are good in spite of the fact that they have suffered in clearness through reproduction. A very good one, on p. 360, shows a tubercular hip injected with bismuth emulsion; the sinuses appear very clearly. On the opposite page is a lateral view of the spine, with caries of the lower dorsal vertebræ—technically a very difficult skiagram to make so clearly as the example given. The last two chapters, on ophthalmology and dentistry in relation to X ray therapy respectively, are extremely good.

LIBRARY TABLE.

A Manual of Practical Bio-Chemistry for the Use of Students during Introductory Courses. By H. LEIGHTON KESTEVEN, D.Sc., Lecturer in Physiology and Bio-Chemistry in the Technical College, Sydney. Sydney: Angus and Robertson, Limited. London: Australian Book Company. 1912. Pp. 64. Price 2*s.* 6*d.* net.—This little book is intended for two classes of students—viz., for school teachers within and without the Department of Public Instruction and for students who, wishing to enter the science or medical schools of the University, have elected to take physiology as their single science subject in the matriculation. It comprises concise descriptions of 101 "experiments," some of which are preceded by brief explanatory remarks, but there is no attempt to discuss the chemical constitution of the organic substance dealt with. It represents expanded notes that were prepared as a guide to the laboratory assistants. The directions are explicit, terse, and practical.

Health to Date. The Modern Doctor with Newer Methods of Cure. As explained by W. T. FERNIE, M.D. Durh. Bristol: John Wright and Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1911. Pp. 477. Price 4*s.* 6*d.*—Dr. Fernie discusses with much observation, common sense, and originality all sorts of subjects bearing on health in its relation to everyday life. His book betokens wide reading, which indeed is obvious in the frequency with which quotation is brought into play—not to make a parade of learning, but to elucidate the subject. In his preface the author states that his subject is the welfare of the body, according to the most enlightened medical knowledge of the times, and he wishes to put into plain terms the rationale and details of new methods which have come into vogue during the last century. He discourses genially and quaintly, and for the most part sensibly, of various kinds of foods, vegetarianism and other hygienic "isms," of the use of alcoholic beverages and other stimulants, the water cure, cancer, the use of drugs and drug habits, radium and the X rays, phototherapy, organotherapy, homœopathy, massage, "bone-setting," the Weir-Mitchell treatment, open-air treatment, hygienic clothing, palmistry (which he considers in the light of the finger-print study), sleep, hypnotism and suggestion (not forgetting "Christian Science" and the other forms of faith cure), and psychical phenomena. Says the author's "swan song":—"The present writer, in his advanced years, lays the flattering unction to his soul that the following simple little volume, as his last venture in print, may fortunately find favour with the health-seeking public." We hope that his wish will be realised, for whoever reads this book will find himself carried entertainingly along on a wave of profitable reflection.

Alone in West Africa. By MARY GAUNT. Illustrated. London: T. Werner Laurie. Pp. 404. Price 15*s.*—The authoress went to West Africa in order to become acquainted with a savage land; she found a savage land, but also one with "immense possibilities, a land overflowing with wealth, a land of corn and wine and oil," also of rubber. On the whole Mrs. Gaunt was more than pleased with a part of the world that has generally met with little commendation; she even speaks of the "fascination of Africa" as applicable to the settlements on the West Coast. There are two matters on which she speaks, and evidently feels, strongly. One is the supposed inability of Englishwomen to live ordinary lives on the Coast. With the exception of the nursing sisters at Sekondi (Gold Coast) all the Englishwomen appear to pay short visits; they have no interests in the country, they are much afraid of "chill," they shut themselves up in the house, and go home after a few months' sojourn very often describing themselves or being described as wrecks. The Germans, on the other hand, make their homes there; and so do the French. Mrs. Gaunt ascribes this to the greater interest taken in domestic matters by them than by our own countrywomen, their greater tendency to stick to their husbands, and their less luxurious ideas. "They make a home wherever you find them, and it is this *haus-frau* element in them that saves them." Our own people have too much of the feeling of exile. The authoress became convinced that if England is to retain her pride of place as a colonising nation with the French and German "she must make less of this exile theory and more of a home in these outlands." The other point on which Mrs. Gaunt speaks strongly is her love of fresh air, which is laudable enough *per se*, but which leads her to pour contempt on anti-mosquito protective measures. She records (p. 18) her "firm belief that no inconsiderable number of lives in Africa must be lost owing to some doctor's prejudice in favour of mosquito-proof netting." Again, at Accra she ascribes ill-health to people spending "their sleeping hours in the vitiated air of a mosquito-proof room." The account of Liberia and its capital, Monrovia, where the children are taught algebra and Euclid, but the streets are impassable owing to neglect, and the people exist "waiting for their houses to tumble about their ears," is melancholy reading; "it marks the failure of a race, it almost justifies the infamous traffic of our forefathers." Apparently nobody works; "no Liberian is a craftsman even of the humblest sort"; the country lives on the Customs dues; it is a rich country, but owing to ignorance and idleness produces nothing. The writer has strong objections to mosquito nets, and, to some extent, to missionaries; perhaps a larger experience of tropical climates would lessen the first; as to the second, her point of view is, why worry? The book is well illustrated with numerous excellent photographs taken by the authoress, and is bright and interesting throughout. The name of the once popular poetess, L. E. L., who died so tragically at Cape Coast Castle, was Landon, not Landor. It is a pity that there is no indication of date either of the journey chronicled or of the publication of the book.

THE FACTORY GIRLS' COUNTRY HOLIDAY FUND.—Under the auspices of this fund 6000 of the poorest workers were last year sent away from the crowded neighbourhoods of London for a much-needed holiday. We have received an appeal for financial help signed on behalf of the fund by, amongst others, the Duke of Norfolk and several bishops, pointing out that last year the girls' payments amounted to £1665. This sum exceeded the donations. The proportion must this year be reversed if the committee are to help and refresh those most sorely in need. Subscriptions and donations may be sent to the chairman, the Rev. E. Canney, St. Peter's Rectory, Saffron-hill, London, E.C.; to the honorary secretary, Miss Paget, 28, Campden Hill-square, W.; or direct to the London County and Westminster Bank, Holborn-circus Branch, E.C.

THE LANCET.

LONDON: SATURDAY, JULY 6, 1912.

The National Insurance Act.

THE next issue of THE LANCET will appear on what is for practical purposes the eve of the coming into force of the National Insurance Act. Many times has the warning been repeated that the position of the medical profession is not only as yet insecure under that Act, but positively unascertained, yet it may come as something of a shock for all parties concerned to find that they are now definitely within one week of what may prove the most critical phase in the history of medicine in this country. At the risk of repeating what has been often said, we must again protest against the assumption by the Government that the medical profession is prepared to collaborate in the machinery of the Act under the existing guarantees. The working of the Act proposes to provide for the medical needs of about one-third, at a moderate estimate, of the population to which it refers; and the claim is also made that the medical benefits, provided in return for contributions from the State, the insured, and the employers, shall be of the very best attainable. Such a claim must have enormous influence upon the future of medicine, not only upon the material prospects of those who live by its practice, but upon the progress of the science which is thus called upon, at a short notice and in many novel and incomprehensible ways, to display itself in the finest manner both in preventive and curative directions. Rightly managed, such a scheme would be a grand incentive to every branch of our calling; wrongly planned, it may involve the public and the medical profession in disaster. Many times as these and similar things have been said, they must be said again, for it is perfectly obvious that those in whose hands the discretion now lies, despite certain vigorous protestations on political platforms and in debates, do not appreciate the seriousness of the position. The Commissioners are probably far more alive than the Government to the true state of affairs. Many speeches and many letters have been devoted to making clear to the country, and especially, of course, to those who view the National Insurance Act with misgivings, that that measure is now the law of the land, and that resistance is not only too late, but is an anarchical proceeding which merits alike the reprobation of all good citizens and such remedies for an attitude of social rebellion as the legislature can effectively carry out; but the unanimous and closely reasoned objections to the conditions under which it is proposed to administer the medical benefits remain unanswered. There have been concessions, and we do not go so far as to say that they have been meaningless, or that the position is exactly the same as it was a year ago, but the net result of a vast amount of parleying has been little.

We resent the statement now being made that the medical profession is in a state of rebellion. The medical profession, a highly educated and highly organised body of citizens whose calling must always be one of great delicacy and responsibility, is the last section of the community to resist the law for the fun of the thing, or, indeed, to resist the law for any reason whatever; and the attitude of the profession, whatever those interested in the working of the National Insurance Act in its present form may say, does not happen to be one of resistance to the law at all. From the very beginning the representatives of the medical profession—the General Medical Council, the great degree- and diploma-granting bodies, the British Medical Association, and the medical press alike—have pointed out the impossible situation in which the profession has been placed by the fact that the Chancellor of the Exchequer, when framing his Bill, knew little or nothing of the conditions of medical practice—which may be excusable—and took no steps, or the wrong steps, to ascertain what those conditions were—and this is inexcusable. At various times during the last twelvemonth Mr. LLOYD GEORGE has been made aware that in some places he and his advisers have been ignorant, and in others mistaken. A tedious series of bargainings has been in progress between the Chancellor and the medical profession during all that time, the reason for which and the meaning of which can be but the same—the revolt of medicine against the treatment meted out to it was found upon consideration too serious to be neglected. But our protests, though treated with an attention that was sometimes quite anxious, remain to a large extent without practical answer. As we write the medical profession is still in doubt as to the position which it occupies under the Act; hospitals are still in fear as to the strain which may be unduly thrown on charitable resources; and those in whose hands the education of our young men lies, or to whose final developments of scientific work we look for our indications of future progress, are caught in the perplexities which surround them. All interested in medicine pointed out, when the measure first appeared, that the proposed administration of medical benefits was faulty; redress has been freely promised, but has not been forthcoming; and to describe unwillingness to work the Act as mere greed, or as some form of treason, is silly.

Of course, if we, the medical profession, were the literal and salaried servants of the State, and if, an Act of Parliament having enjoined upon us certain duties, we replied that we would not discharge them, then an accusation of rebellion would be justifiable. But the medical profession is not in that position at all. The medical profession is not a State service, but is the servant of the public, and every member of it from top to bottom is desirous of doing his best to promote the very things for which the National Insurance Act stands—namely, the immediate alleviation of misery and the permanent amelioration of the race. The unwillingness of the medical profession to work the Act is not an example of resistance to a law that is unpleasant, for the purposes of the law are largely our own ideals. The medical profession simply awaits the fulfilment of the promises that

the conditions for the administration of medical benefits should be made fair. There are many indications in the Act as it stands that the alleviation of misery will be partial, and that the amelioration of the race will be, at any rate for some time, illusory. The demands of the medical profession are designed to remedy these defects. If those who are to minister to the medical needs of the country are so treated that their services must often be offered in a manner not only unsatisfactory to themselves but inadequate to the public needs, the welfare of the community will not be advanced. A united determination to obtain from those to whom the working of the Act has been entrusted some more satisfactory terms than are at present offered is only reasonable. The Act offers medical benefits in name; the medical profession desires to supply them in reality. This cannot be described as anarchical.

In another column will be found a statement by the Chancellor of the Exchequer on the subject of medical remuneration under the Act. This statement is included in the reply of the Commissioners to the communication sent to them at the close of last February by the British Medical Association, in which were set out the terms whereby, and whereby alone, the members of the Association were prepared to work the Act. The reply of the Commissioners sufficiently shows that the Government will not fix any wage limit, even a maximum wage limit, for insured persons, and will not admit that the administration of medical benefits by Insurance Committees is now jeopardised by the comparatively small medical representation on those bodies. The Chancellor of the Exchequer considers the demand for an 8*s*. 6*d*. capitation rate, exclusive of medicines and extras, unjustifiable, quoting figures whose correctness will be challenged. In short, the position is little altered since the beginning of the year, and we doubt if the British Medical Association will effect much now by further discussion, though in the paramount interests of peace they may be prepared to try.

Medical Practice in India.

WE have on several occasions during the past year drawn attention to the dissatisfaction that at present exists in the ranks of the medical profession in India. At home the position of affairs is probably not generally fully understood, and the misgivings expressed by our colleagues in India may appear baseless or captious. But is it recognised that at the present time throughout the vast empire of India any man may call himself a "doctor" and set up in practice? It might be supposed that, at any rate, European practitioners would not do this without possession of the necessary degrees and diplomas, but away from the large cities questions on such points are rarely asked, and with the native population such pretenders to our qualifications would be thought the equals of any properly registered men. Even if, owing to the claim to unearned position and unproven knowledge, evidence has to be given in court, cross-examination as to technical qualifications is very rare, while the British universities or medical corporations would probably be much embarrassed in any attempt to set legal proceedings in motion against assumption of their diplomas or degrees. The absence of a proper system of registration has now become a serious evil.

There may be said to be some seven different descriptions of medical men actually practising in India at the present time. First, there is the official Indian Medical Service, all of whose members hold a degree or diploma registered in the United Kingdom. About 10 per cent. of these officers are Asiatics or Eurasians, who have, however, resided at least three years in the British Isles. Next comes the unofficial European, holding a British degree or diploma. Most of this class hold salaried positions in tea-gardens, mines, or Government railways, taking private practice in addition. In the large cities, such as Calcutta, Bombay, Madras, and Rangoon, many leading medical men also have British qualifications, and are generally distinguished members of the profession. They often hold a doctor's degree or the fellowship of a college; they are mostly of high professional attainments and would, with us, usually be held to belong to the consultant class, sharing this position with the most distinguished members of the Indian Medical Service. But besides these practitioners of the higher rank there are others who, forsaking the traditions of their calling, practise either as partners of firms engaged in the drug trade or as salaried assistants in pharmaceutical establishments. The *modus operandi* here is that the general public who visit the shop are allowed to consult the medical man attached to it free of charge, only the prescriptions that he orders being paid for; and, needless to say, those prescriptions have to be dispensed at the same establishment. Such a practitioner receives a fixed salary, and often a commission as well on the moneys obtained from the prescriptions ordered by him. The general public do not realise what is involved, or that the medical man whom they consult is not a free agent to give his patient unbiassed professional advice. They do not realise that he is employed to sell drugs, and that, in derogation from true professional standards, it is his business to see that no client leaves the premises without having purchased something to cure his ailment. On no account may a patient go away with advice only, for in this case the proprietor would be at no profit whatever. Such proceedings would not be tolerated in England, and would lead to an inquiry by the General Medical Council if the offender were a registered medical man. Thirdly, comes the Eurasian or Asiatic who holds British diplomas, and who may be practising in a reputable manner, or may be combining professional advice with the sale of drugs, it being hard to draw the line between the scope of the private dispensary and that of the druggist's shop. To obtain the diploma of any of the English examining bodies full five years' residence in England is usually required; but some licensing bodies accept certificates of attendance at lectures from Indian colleges, thereby enabling an Indian student to start his medical career in India, and after only three years' residence in the British Isles to obtain a European qualification and all its accompanying prestige, with a minimum residence out of India. It is clear that the ethics and standards of these various classes of men who practise medicine in India must differ widely; what to one would appear as a professional

enormity to another would be all in the day's work. We again find that registration for practitioners resident in India is loudly called for.

There are many practitioners in India who hold British qualifications, but who have not registered. In the existing circumstances very little is lost to them by their negligence—indeed, they save the fee for registration, for it is their intention to practise in India, where the General Medical Council has no terrors, while the *éclat* of having been to Europe is retained. But a system of registration is now required. Non-registration may lead to impersonation, a father handing over a bundle of diplomas to his son, for instance, with little risk of detection. In addition, non-registration leaves a professional offender with no penal court from which he may receive reproof. At the medical colleges of the Indian universities the standard is much the same throughout, even if the title varies, and enormous good would follow a system of registration. Calcutta grants an M.B. degree; Madras grants an M.B., C.M.; Bombay gives a diploma of the Grant Medical College (D.G.M.C.). In the military service there are assistant surgeons (Europeans or Eurasians) and sub-assistant surgeons (native Indians), until recently called hospital assistants. In both these grades there are many who perform civil duties, but in neither of them is there any qualification to practise independently, though many in these grades are extremely capable men, having both skill and experience. Next come the native so-called medical colleges, under no official supervision, run by native doctors, and granting high-sounding diplomas, either after some slight training or without any at all, being really bogus degree shops of the American pattern. Lastly, there is the native *hakim* pure and simple, who practises a traditional medicine with a mixture of religious observances. Such knowledge as he possesses is handed down from father to son. These people correspond to the witch doctors and medicine men of the more savage races. This summary of the condition of medical, or quasi-medical, practice in India at the present day shows that there is urgent need for the introduction of order into chaos.

The Pathology of Immunity.

DURING the last decade much attention has been devoted to the study of the immunity, naturally or artificially acquired, against bacterial invasion. It has become recognised that, dependent upon the class of bacterium, the type of animal invaded, and the mode of infection in question, the micro-organism may vary in potency to produce disease to such an extent as to be either non-pathogenic, pathogenic when numerically sufficiently strong, or so pathogenic that a sublethal dose is experimentally undemonstrable. In the underlying factors which determine these variances may well lie the solution of many unsolved problems in the study of immunity to microbic infection in man. The absorbing researches of WEIL and BAIL marked a step forward in our knowledge of this subject by showing that pathological exudates, rendered free from all bacteria, contain substances—in all probability the products of bacteria themselves—which have the property of intensifying the pathogenic effect of bacteria when acting in conjunction with them; although these substances can act as antigens for the production of active immunity, yet during the process of immunisation a state of hypersusceptibility results. The authors have given to these substances the name of "aggressins."

In our issues of June 15th, 22nd, and 29th, concluding the series in the present number, we have published the Croonian lectures delivered before the Royal College of Physicians of London by Mr. LEONARD S. DUDGEON. The lectures embody the results of two years' work concerning the presence of inhibitory substances in the body fluids and blood stream and the part played by these substances in infection and immunity. The first part of the research deals with the activity of the blood and body fluids obtained from acute and chronic infective diseases occurring in the human subject as regards hæmolytic power and phagocytic activity towards the infecting and a foreign micro-organism. The experiments produced show that the body fluids which contain complement also contain opsonin, and the opsonin is present for bacteria other than those which give rise to the disease from which the patient is known to be suffering. Should these experiments be confirmed it becomes obvious that no inference of diagnostic import is permissible from the determination of the opsonic index against the specific organism, inasmuch as there is a common reduction in the opsonin. Passing on to the effect of treating blood serum with body fluids obtained from various acute and chronic infective processes caused by the pyogenic bacteria, Mr. DUDGEON concludes from his experiments that the complete absence of opsonic action of the exudate, previously noted by WRIGHT, and called by him a condition of lowered bacteriotropic pressure, is not the important fact, but the antiphagocytic property for pyogenic bacteria which such a fluid may have on normal blood serum is the vital point. Similarly, Mr. DUDGEON would explain the action of BIER'S congestion treatment rather on the lines of replacing a fluid inimical to the defences of the body by a normal serum than to the replacing of a fluid deficient in opsonin. It is interesting to note that as regards tuberculous pus Mr. DUDGEON found that it was experimentally an inert fluid, both as regards content in complement and aggressive action. The effect produced by the intravenous inoculation of normal or immune sera on the leucocyte count and the type of white cell preponderating elicited the fact that any gross change was but transitory, whereas when pathological exudates were injected, either alone or with bacteria, certain well-marked changes resulted. The essential feature of the intravenous injection of a pathogenic exudate is a leucopenia, and a diminution in the total number of polynuclear cells. A diminution in the number of lymphocytes also usually occurs.

These few comments on the lectures delivered by Mr. DUDGEON will, we hope, stimulate those who have the opportunity to continue the lines of research which have been expounded in our pages. The subject is one of the utmost importance in the study of bacterial infection in the human subject. We are well aware that the subject is fraught with problems of a technical nature and rendered still more

arduous by reason of the necessity for correct interpretation of the results obtained by experimentation; but we draw the special attention of our readers to the important contribution to our knowledge of immunity which is elaborated in the Croonian lectures of this year, knowing that to the man imbued with the spirit of research difficulties are but invitations to work.

Annotations.

"Ne quid nimis."

THE DIFFICULTIES OF MEDICAL TREATMENT.

IT is perhaps not too much to say that of all the subjects taught to the medical student, that of the treatment of medical diseases, more especially of minor ailments, receives the least complete and systematic consideration. This is doubtless in part a legacy of the "therapeutic nihilism" of a former generation, but is also to some extent a result of the division of labour necessitated by the increase of specialism in medical work. It is true that systematic courses of pharmacology and therapeutics, illustrated by demonstrations and by practical work in the laboratory, are now almost universally included in the student's curriculum, but they are usually given at an early period of his work in the hospital, at a time when his knowledge of medicine is elementary, and when he is more concerned in the study of symptoms and physical signs than that of treatment. During his clinical clerkship in the wards he studies case-taking, but considerations of treatment are more in the province of the house physician under the supervision of the physician. At a later stage of his course, when he is preparing for examination, it is the question of diagnosis which receives most attention. It is not, therefore, to be wondered at that when the average student has obtained his qualification, though he may have a sufficient knowledge of the drugs and other therapeutic measures employed in the treatment of disease, he has usually only a very imperfect knowledge of the actual management of patients. It is probably for these reasons that the majority of students leave hospital with more clear ideas as to the nature and efficacy of surgical treatment, in which as dressers they have been more directly concerned, than of medical measures. The old system of apprenticeship had a special value in bringing before the student at an early stage of his career the personal factor in treatment, if he were fortunate enough to be attached to a competent and experienced practitioner. What is needed is some means of bringing more directly before the student when he is working in the wards the importance of treatment and the coördination of the various factors concerned in the cure or relief of the patient. The recently qualified man who succeeds in obtaining a resident appointment finds in the responsibility involved in the charge of patients the necessary impulse to study therapeutics practically, and may learn, if he is receptive, that the aim and object of treatment is to relieve the patient rather than to apply a stereotyped remedy for each disease. That man is likely to be the most successful therapist who, being well grounded in the diagnosis of disease, realises the full importance of details of regimen, of little matters connected with nursing, and who takes care to give his patients explicit directions rather than vague generalities, leaving the patient to interpret them according to his own fancy. We would emphasise the fact that the favourite direction of the student in examinations, that the patient should take a "light, stimulating, nutritious diet," is an almost meaningless formula. In all conditions where diet is a matter of importance in treatment the directions given to the patient should be definite, and as far as possible expressed in terms of food substances. No detail connected with the general habits of life may be too trivial, no instruction in regard to the manner of carrying out treatment may be too obvious, to render it unnecessary to tell the patient. The form in which medicines are given should be carefully thought out and judiciously adapted to the patient's circumstances, occupation, and mode of living. It is a thoughtless cruelty to recommend articles of diet, luxuries, drugs, and other measures which are beyond the patient's means. Medical treatment to be effective must take into full consideration the special circumstances of each individual patient—this platitudinous remark is justified by the fact that such forethought is too often not employed.

LORD ROSEBERY AND MEDICINE.

"GREAT men," says Schopenhauer, "are like eagles, and build their nest on some lofty solitude"; but sometimes they descend from the heights to encourage and inspire the dwellers on the plains. Lord Rosebery on July 1st gave away the prizes to the successful students at the London Hospital, and in the course of his address he paid a striking tribute to the "noblest secular profession in the world." The nobility of the medical profession is a well-worn theme, but Lord Rosebery seldom touches a subject which he does not illuminate and adorn both for those who hear him and for those who afterwards read his words. He began by speaking up for the medical student, whose manners and morals have too long been under the cloud of an early Victorian legend. As Mrs. Prig said of Mrs. Harris, so did Lord Rosebery, but in choicer English, of Bob Sawyer and Ben Allen; and he went further, for he doubted whether anything like them ever existed. Then he spoke with just a tinge of regret of the passing of that familiar figure of his childhood, the country apothecary, who has gone down before the march of progress and of whom little trace is to be found in the modern general practitioner. Lord Rosebery's final eloquent words of praise and understanding of the work and aims of the medical profession were worthy of a statesman whose mind has been trained to see things in a large way and who believes in the better side of things. He said that medicine was the noblest profession of them all, because it was the forlorn hope of humanity itself. It was a forlorn hope, because it never could hope to conquer in the long run; yet it never despaired and was always seeking new inspiration and new strength for the battle, which could only have one termination. It was a forlorn hope, because it combated the reptile of disease, from which, though they might successfully cut off a limb, yet, like the fabled dragon of old, another new limb sprang up to take its place. It was a forlorn hope, because even when they had surmounted and conquered one form of disease another and new form, such as sleeping sickness, was sure to spring up in its place. It was a forlorn hope, because all day and every minute of their career medical men were fighting with the angel of death, which must inevitably defeat them in the end. He did not think that this was really a gloomy view to take of the work of the medical profession, because a life which could be spent in the complete conquest of obstacles was rare in all professions. But the heroic fight of medical men was not for their own selfish interests, but in the cause of humanity itself. Lord Rosebery concluded his inspiring address by asking his hearers to be proud to take part in this great crusade on behalf of mankind. Many fine things have been said of the medical life by laymen, but the Chancellor of the University of London has a special duty towards the medical profession, and his speech at the London Hospital

comes at a moment when medical men are particularly in need of sympathy and comprehension on the part of the general public.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: IMPORTANT ADDITIONS TO THE MUSEUM.

THE Museum Committee of the Council of the Royal College of Surgeons of England, in its annual report of the work which has been carried out in the Museum of the College during the past year, gives full particulars of many valuable gifts. Besides the Lister and other collections of surgical instruments which were described in THE LANCET of June 22nd, an important addition has been made by the staff of the Sussex County Hospital, Brighton, who have presented from their museum a collection of specimens embracing some 150 preparations, and many of the best additions to the pathological collection for the year are part of this gift. One of these is of special importance. It is the skeleton of a man aged 68, which was described in 1859 as an example of mollities ossium, but which is undoubtedly a well-marked case of the condition now recognised as osteogenesis imperfecta. At an early date a full description with illustrations is to be published of this skeleton. Although it is usual to speak of the human crania and skeletons in the Museum as forming the series of human osteology, perhaps the term anthropological series better expresses the real nature of this important part of the Museum, for its aim is to represent the structure of all races of mankind. It becomes more apparent as time goes on that of the primitive races now living the native Australians are likely to prove the most instructive in relation to the human body. The College has acquired several crania and skeletons of that race, while some presentations have been made which are of real value. Many rare and valuable specimens have been added to the series illustrating the osteology and diseases of the ancient Egyptians, including skulls and other bones belonging to the second and third dynasties, excavated at Sakara. Remains of ancient man have also been presented which were found in a cave, with wall decorations of a primitive type, in the south of Spain, and some casts of certain remains of ancient man which have given rise to much discussion in Europe. These are the only casts so far received in England. Other additions include a fine cranium of the Veddah people of Ceylon and a collection of photographs of crania of natives of the New Hebrides, while many additions have been made to the series illustrating the cranial form of the ancient inhabitants of Britain. The Archæological Society of Broadstairs presented a series of skulls and skeletons belonging to the Bronze and Anglo-Saxon periods. These have been investigated and for the first time an approximately complete articulated skeleton of one of the Bronze Age men has been obtained. It is felt that it is only by the assemblage of a large number of specimens, with well-ascertained histories, that the material can be provided for a history of the physique of the past inhabitants of England. The work connected with the preparation and examination of pathological specimens is essentially a research on, or investigation of, disease. One of the most profitable investigations has been that carried out in repeating John Hunter's experiments on the feeding of pigs with madder in order to obtain specimens which illustrate the manner in which bones grow. The specimens thus obtained form a notable part of the additions. A medico-legal collection has been formed, and a human femur, with photographs of human remains, found in the ruins after certain Anarchists were besieged in Sidney-street, Whitechapel, in January, 1911, has been presented. The specimens were the means by which it was established that one of the men who perished in the ruins was "Joseph"—a notorious Anarchist. Identification was founded on the indication of a former fracture. Also in a photograph of one of the charred bodies found in the ruins after the Sidney-street siege is to be seen the entrance wound of a high velocity bullet. The report says that the position of the wound negatives suicide. There have been 12,231 visitors to the Museum during the year. Of these, 5623 came on Fridays and Saturdays, the times at which the museum is open to nurses and women. The various classes which visit the Museum on Saturday afternoons by special arrangement have been as numerous as usual, and in the opinion of the conservator, Dr. Arthur Keith, have profited by their visits. The classes, embracing a total of 1252 persons, were composed of ambulance students, teachers at London county schools, members of the police force, or associates of various scientific or literary societies who desire to see and study the various structures.

THE RADIO-ACTIVE NITROGENOUS THERMAL SPRINGS AT BUXTON.

AN interesting advance in hydrotherapeutic practice has recently been developed at the well-known health resort Buxton. It has been known for a long time that the waters were admittedly useful in the alleviation of chronic articular gout and rheumatism, irregular forms of gout being benefited and acute attacks cut short; but in spite of very elaborate analyses having been made of the water there did not appear to be any constituent present to which could be definitely ascribed the therapeutic efficiency of the waters. The waters are naturally thermal (82° F.) and give off a good deal of gas, but the mineral constituents only amount to 27 grains per gallon, consisting chiefly of the carbonates of calcium, magnesium, chloride of sodium, with traces of iron and manganese. It can hardly be supposed that these constituents or the rarer ones, the sulphates of barium, calcium, potassium and sodium, lithium and strontium, can possess action more than mildly favourable to the gouty diathesis, and yet there can be little doubt of the relief which a course of the waters gives to a great many patients. Attention was next turned to the gases, and these showed a unique richness in nitrogen. Chemists have long asserted that nitrogen was an inert body, but recent researches point to the possibility of its possessing active qualities. Whether that is so or not, the occurrence of an abundant supply of nitrogen in a natural water commonly connotes a process of degradation, and this is definitely established in the case of Buxton by the discovery that the waters are pronouncedly radio-active. This finding has led to modernising the application of the waters in order that the radio-active forces of the water may be as far as possible conserved for treatment. The reopening of the St. Ann's Well by the Duke of Devonshire on Saturday last, June 29th, really means that a pump-room has been constructed which presents the water with its radio-activity undiminished, because the ordinary mechanical arrangements which lead to loss are left out. In other words, the supply of water to the patient is kept as near as can be to natural conditions. A marble hall, with a marble well in which the water appears in its natural state, warm and bubbling, and available for therapeutic use, forms the pump-room, but there is no pump. The new supply runs through the "pump" room at the rate of 60 gallons a minute, and a continual discharge of radium emanations is being given off from the surface of the water, converting the "pump" room into an "emanatorium," and patients sitting there drinking the radio-active water have the advantage also of breathing an air showing marked radio-active properties. This step in hydrotherapeutic practice will be watched with

considerable interest, as it promises to secure the utmost advantages which, if they are due to radium emanation, the healing properties of waters are capable of giving. We have yet to learn exactly why radio-active properties minister to gouty and rheumatic affections in particular and other affections in general. The indication so far is that radio-activity has a decidedly healthy influence over the processes of nutrition, and so many affections are incompatible with correct metabolism. There are, however, other factors in places of health resort which are an aid in the restoration of health. Buxton, for example, is situated in very charming country over 1000 feet above the level of the sea; the air is thus invigorating and bracing.

THE ROYAL SOCIETY OF MEDICINE.

AT the annual meeting of Fellows, held at 1, Wimpole-street, London, W., on July 1st, the following were elected to serve as officers and members of the Council for the session 1912–13, entering into office on Oct. 1st, next:—President: Sir Francis H. Champneys, Bart. Honorary Treasurers: Sir William Selby Church, Bart., and Sir Henry Morris, Bart. Honorary Librarians: Sir Rickman J. Godlee, Bart., and Dr. Norman Moore. Honorary Secretaries: Mr. Herbert S. Pendlebury and Dr. E. Farquhar Buzzard. Other members of Council: Dr. W. P. Herringham, Dr. Arthur Latham, Mr. R. Clement Lucas, Dr. T. W. Parkinson, Dr. G. Newton Pitt, Mr. D'Arcy Power, Dr. H. D. Rolleston, Sir James Reid, Bart., and Mr. Charters J. Symonds. In addition to these the following Vice-Presidents of the society, being the Presidents of the various sections (elected by the respective sections), are *ex-officio* members of the Council:—Vice-Presidents: Dr. J. Blumfeld, Dr. Percy G. Lewis, Mr. A. H. Tubby, Sir William Osler, Bart., Sir Malcolm Morris, Dr. Reginald Morton, Dr. W. H. Hamer, Mr. Herbert Tilley, Dr. Frederick Taylor, Dr. H. H. Tooth, Dr. Amand Routh, Mr. P. Sidney Spokes, Dr. J. Dundas Grant, Dr. R. T. Hewlett, Sir George H. Savage, Mr. Clinton T. Dent, and Dr. W. E. Dixon.

DREAMS AND THEIR SIGNIFICANCE.

THE study of dreams is a subject of universal popular interest, but thus far we can hardly claim that it has been placed on a scientific basis. The question as to whether some form of mental action of the nature of dreaming is continuous during sleep has been often discussed, and the movements of sleeping dogs and other lower animals are pointed to as a proof of such activity. On the other hand, the deepest sleep is often characterised as dreamless. In a recently published paper[1] Sir G. H. Savage reviews the question of dreams, but does not answer this problem. He holds that some mental action is as constant as heart's action throughout life, but he reserves the term dream for such mental activities as are recalled on waking, probably a very small part of all mental activities during sleep; for if movements of a slumberer are evidences of dream action, persons certainly may forget their dreams on awaking, while there is even in the waking state a large field of mental action which is subconscious or even unconscious. The study of dreams is not without importance from a medical point of view. We do not, indeed, look to this source of inspiration for hints as to lines of treatment to adopt, as our predecessors sought guidance by sleeping in the temples of Æsculapius, nor would many educated persons own that they attributed any prophetic import to the visions of the night. Nevertheless, dreams may throw light on the health of the dreamer, and this relationship is most noteworthy in cases of insanity. Sir G. Savage quotes the case of a lady who had a vivid dream that she saw her brother with his throat cut, and this dream was followed by an attack of mania; after recovery from this a second and third attack were heralded by the occurrence of similar dreams. This type of warning of the onset of mania has been noted in several instances, and use may be made of the association by taking steps to place such patients under medical care before the actual onset of the mental breakdown. Melancholic patients, as might be expected, usually suffer from dreams of a depressing nature, and the appearance of more cheerful nightly visions is of good prognosis for the recovery of their mental balance. In some cases of mental defect vivid dream-fancies may persist as fixed hallucinations, and this is notably the case with erotic dreams in women; they may even give rise to false accusations of rape or indecent assault.

[1] The Bristol Medico-Chirurgical Journal, June, 1912, p. 156.

THE REGULATIONS GOVERNING THE TRAINING OF MIDWIVES.

THE Central Midwives Board has recently had under consideration several cases of the improper signing of the schedules of examination candidates by those engaged in the training of pupils. The necessity of literal compliance with the rules laid down by the Board for regulating the training of pupil midwives appears to be imperfectly appreciated by some of those to whom the Board has accorded permission to carry on the work of training. The certificates of training required from candidates for examination (Rules, Schedule, Forms III., IV., and V.) are explicit in language and plain in intention, and afford no reasonable ground for misapprehension of their effect. In particular the Board desires to emphasise some points which have been disregarded in the signing of some recent certificates, and these have been set out for us as follows by the secretary to the Board:—

1. Responsibility for the truth of a certificate attaches to the signer from the moment of signature. To certify that a pupil has personally delivered or nursed twenty cases, or has attended fifteen lectures, when in fact she has not done so *before the signing of the certificate*, is to make an untrue statement, and none the less so though the pupil completes her cases or lectures before the day of the examination.
2. "Three months" (Rule C. 1 (3) and Schedule Form V.) means *three calendar months*, and not twelve weeks, or any other period of time.
3. The minimum number of fifteen lectures is to be spread as evenly as possible over the minimum period of three months. Under no circumstances may more than one lecture in one day be counted.
4. Demonstrations—however helpful to the pupil—are not to be counted as lectures.
5. No lecture should be for a shorter period than forty-five minutes at the least.
6. It is highly desirable that every person responsible for the training of pupils should see that each pupil reads over and understands, before she begins her training, the whole of the schedule which she has to countersign at the end of her training.

As the training of examination candidates is subject to the approval of the Board it is hoped that this intimation will prove sufficient to prevent future irregularities.

INFANTILE PARALYSIS IN MASSACHUSETTS.

A REPORT has been issued by the Massachusetts State Board of Health dealing with the epidemic of infantile paralysis which commenced in that State in 1907. The report, which consists of a series of articles by expert authors, covers the years 1907–10 inclusive. A most interesting *résumé* of the general question of infantile paralysis as well as of the special outbreak is given by Dr. Robert W. Lovett, of Boston, whilst Dr. Philip A. E. Sheppard, also of Boston, deals with the epidemic in Springfield, one of the worst centres of the disease. In both articles a careful examination is made of the manner in which the disease may have been transmitted. The evidence is, however, inconclusive, and the deductions more suggestive than convincing. Thus the situation of the houses in relationship to the railway, roadway, and waterway is carefully examined. The condition of the houses with respect to

age, dampness, dust, and vermin is taken into consideration; while the deficiency of rainfall, which was considerable in the years under consideration, the mean temperature in relation to the incidence of the disease considered month by month, the possible and most probable means of the spread of the disease by contagion—all receive attention. Of the possible factors involved the available evidence suggests that direct contagion by contact at large local gatherings or the presence in the house of biting insects are the most probable. The children in large institutions appear to have been singularly free from the disease. A consideration of the age incidence shows that out of 897 cases 600 occurred in children under 6 years of age, and 745 in children under 10, the mortality being least between the ages of 1 and 10. As a whole, boys were rather more affected than girls, but no marked degree of sex differentiation could be traced. An account is also given of the symptomatology and course of the disease, with tables showing the part of the body affected and the results left by the attack. About 25 per cent. of the cases examined after four years showed complete recovery. It had been shown by Osgood and Lucas that the virus remained in the naso-pharyngeal mucous membrane of the monkey when infected with the disease. Attempts were made upon 18 persons who had suffered from the disease to obtain evidence of the presence of the virus by taking washings of the mucous membrane of the nose, mouth, and pharynx; the results were negative, but for various reasons cannot be regarded as conclusive. Some degree of evidence was obtained, showing the probability of the occurrence of a slight leucocytosis in the early stages, but it is naturally difficult to get the cases in the very early stages. Further investigations were to be carried on in 1911 on a larger scale, as a result of which further light upon this important subject may be hoped for. Meantime, the present report, which is illustrated by numerous diagrams and tables, is most interesting, and contains much valuable material. In a paper read before the Medical Officers of Schools' Association by Dr. F. E. Batten on Nov. 8th last the question of the spread of infection of poliomyelitis by schools was fully discussed, and the conclusions arrived at were that the danger from this source was slight, though the possibility of such an occurrence should be carefully borne in mind by the responsible medical officers.

A HUNDRED YEARS OF GAS-MAKING.

THE history of coal-gas making has an interesting bearing upon the progress of medicine when we reflect that two by-products of the industry in the early days furnished valuable materials for the advancement of bacteriological science. Carbolic acid was the pioneer germicide in antiseptic treatment, and the aniline dyes have done much to lead histology to its present refinements, while the modern methods of staining by means of these powerful colourings have brought the various disease organisms into view and rendered their differentiation possible and their growth and development plain to the eye. Medicine owes again to the gas industry a number of synthetic drugs of more or less value in treatment. The recent celebration of the centenary of the great gas-supplying corporation of London, the Gas Light and Coke Company, is therefore not without medical interest. There are also obviously hygienic and economic considerations connected with the supply of lighting and heating to the largest city in the world which must come under the critical observations of our readers. The development of the metropolitan gas-supply has been enormous, and the improvements that have been made in lighting and heating appliances have been extraordinarily rapid. The present capital of the company amounts to close upon 30 millions of money, they carbonise nearly 2,000,000 tons of coal per annum, they sell more than 25,484 million cubic feet of gas during that period, the present annual revenue from by-products is some £356,224, and the amount of money absorbed in salaries and wages is well over £1,000,000 per annum. The appreciation of gas as a cheap and convenient source of heat and light is shown by the fact that no less than 231 millions of pennies were collected in 1911 from the automatic meters. The statistics serve to indicate the magnitude of the largest gas undertaking in the metropolis, but, of course, there are other corporations the activities of which raise to a colossal point the figures representing the total output to the metropolitan area. The working of the metropolitan gas companies is evidently conducted very harmoniously, the relations between employer and employed seem to be satisfactory, and the community is bound to recognise how carefully an industry potential with danger is handled. Accidents arising from gas-supply are comparatively rare, and yet the Gas Light and Coke Company alone have nearly 2500 miles of mains in the streets. The congratulations which were offered on the occasion of the centenary festival were well deserved.

APPENDICITIS IN TYPHOID FEVER.

THE proximity of the vermiform appendix to the site of the usual lesions of typhoid fever, and the large amount of lymphoid tissue contained in it, suggest that its implication should not be uncommon in typhoid fever. Ulceration and perforation of the appendix have been found in the post-mortem room, but cases in which "appendicitis" has presented itself clinically are very rare. In the *Australasian Medical Gazette* of May 11th Mr. L. M. McKillop has reported the following case, showing the difficulties that a country practitioner is often called upon to face in diagnosis. A strong girl, aged 19 years, was taken to him with the history that she had been seized three days before with severe pain in the right side accompanied by bilious vomiting. She stated that the pain radiated towards the right thigh. On examination the temperature in the mouth was 101·2° F., in the rectum 102·4°, and the pulse was 118. Per rectum there was distinct tenderness in the right side of the pelvis. The right iliac fossa was very tender, and the muscles there were on guard. Appendicitis was diagnosed and she was sent to hospital, where she spent a restless night in spite of a small dose of opium. Next morning Mr. McKillop opened the abdomen and found the appendix lying across the brim of the pelvis. It contained a small hard body and its tip was swollen and congested. The appendix was removed and found to contain a fæcal concretion. The temperature immediately fell to normal, and by the following morning the muscular rigidity of the right side of the abdomen had largely disappeared. But about 8 P.M. the temperature rose to 102° and the pulse to 96, and the patient complained of nausea. It was suspected that something had gone amiss with the stump of the appendix, though the operation had been performed under aseptic conditions. Vomiting of bile set in, and on the following morning, under the belief that peritonitis had supervened, the abdomen was opened suprapubically, with the object of repairing the leak and draining. Mr. McKillop was astonished to find absolutely no trace of peritonitis; the stump of the appendix was healing and lying snugly in the iliac fossa. However, he left a small rubber drain in the lower angle of the wound. The vomiting continued for two days and then stopped gradually. After some days, during which the temperature remained over 103° and the pulse over 80, the tongue became foul and coated along the centre, the nose bled,

and rose spots appeared on the upper part of the abdomen, and enlargement of the spleen could be made out. The temperature was now typical of typhoid fever and the Widal reaction was obtained. After five weeks the temperature fell to normal and recovery followed. What was the primary disease? Mr. McKillop thinks it was typhoid fever which, implicating the lymphoid tissue of the appendix, rendered that organ intolerant of the fæcal concretion, which previously gave no trouble. The time of onset of the appendicitis—the end of the incubation period of the typhoid fever—bears this out. Mr. McKillop also enters a plea for the use of turpentine in typhoid fever. He gives 10-minim doses in hot milk thrice a day. He has used it in 70 cases, of which he did not lose one. The advantages he claims are: (1) being styptic, it tends to check oozing from Peyer's patches; (2) being antiseptic, it keeps down meteorism and therefore reduces the danger of perforation; (3) being carminative, it assists in the expulsion of flatus and therefore promotes comfort.

AN ATMOSPHERIC POLLUTION COMMITTEE.

AT the closing conference of the delegates present at the International Smoke Abatement Exhibition held at the Royal Agricultural Hall on March 28th, 1912, the following resolutions were adopted:—

1. That in the view of this conference it is desirable that immediate steps should be taken to decide upon and secure the general adoption of a standard method for the measurement of atmospheric pollution by smoke and the other products of combustion and dust in order that the data now being collected may possess a comparative value, and that a committee be appointed to draw up details of a standard soot and dust measurement apparatus and methods of its use.

2. That the committee do consist of Dr. H. A. des Voeux, M.D. (honorary treasurer, Coal Smoke Abatement Society), Professor J. B. Cohen, B.Sc., Ph.D., F.R.S. (Leeds University), Baillie W. Smith, Convenor of the Air Purification Subcommittee of the Glasgow Corporation, Dr. Hawksley (Liverpool), Mr. J. B. C. Kershaw, F.I.C. (Hamburg Smoke Abatement Society), Dr. John S. Owens, M.D., A.M.I.C.E. (Coal Smoke Abatement Society), Dr. W. N. Shaw, M.A., D.Sc., LL.D., F.R.S. (Director, Meteorological Council), and Mr. S. A. Vasey, F.I.C., F.C.S. (THE LANCET), with power to add to its number.

3. That the conclusions and recommendations of such committee be reported to the delegates forming this conference and to all municipal authorities in the United Kingdom.

To these names were subsequently added those of Mr. E. D. Simon, Smoke Abatement League, Manchester; Mr. J. G. Clark; and Dr. R. Lessing. The first meeting of the committee was held at 14, Buckingham-gate on June 21st, when the possible methods of estimating atmospheric impurity were discussed. The committee concluded that the method suggested and adopted by our laboratory commissioners was the best for employment at present. This method was outlined in our issue of Jan. 6th, 1912, in a special article entitled "The Sootfall of London, its Amount, Quality, and Effects," which gave the results of a year's experimental observations made in various parts of the metropolis, including a suburban district for comparison. The results were received with very general interest, and it is hoped that each important city will carry out a similar investigation. As is pointed out by the committee, it should be possible, by standardising methods of measuring air pollution, to obtain very valuable comparative figures for the different localities. We heartily support all efforts to keep the atmosphere clean, and the relations of atmospheric pollution to health may well be emphasised.

WE regret to announce the sudden death on June 28th of Dr. William Murrell, physician and lecturer on medicine at Westminster Hospital. Dr. Murrell, several of whose writings were well known to the medical profession, was in his fifty-ninth year, and had recently succeeded to the position of senior physician to the hospital.

IN the name of a large number of our readers we congratulate Dr. Hugh Kerr Anderson, F.R.S., upon his election to the vacant Mastership of Gonville and Caius College, Cambridge. The appointment is a happy one, for Dr. Anderson has a high reputation as a physiologist, as a teacher, and as an administrator in college and university affairs, while his sympathy with the work of medical students has influenced many careers in our profession.

THE CLASSIFICATION AND PREVENTION OF DEAFNESS.

A SERIES of lectures on the Causes and Prevention of Deafness is being delivered by Dr. J. Kerr Love at the Royal Sanitary Institute. The lectures are under the auspices of the National Bureau for Promoting the General Welfare of the Deaf. Lord Justice Fletcher Moulton presided over a large attendance on Thursday, June 27th, when a particularly interesting lecture was given.

Dr. KERR LOVE began by pointing out that acquired deaf-mutism was due chiefly to three diseases: scarlet fever, measles, and meningitis, the last being the most important. Meningitis also caused over 10,000 deaths annually in England; it was almost always infectious, and, except when it was epidemic and was called spotted fever, it was never notified. Dr. Kerr Love pointed out that though municipalities spent large sums of money in isolating and treating cases of scarlet fever and measles, they seldom thought it worth while paying for special skill in treating the ear complications of these diseases whilst the child was in hospital, and children were often dismissed with discharging ears which were infectious and which gave rise later in life to complications which killed them. Referring to the medical inspection of school children, the lecturer gave it as his belief that in dealing with ear discharge the greatest good would be done by having aural school clinics within the school and under the supervision of specialists. The present system of taking such cases to hospital dispensaries was wasteful of the time of the child, wasteful of the time of the mother who had to leave her home, and the results were poor because the visits to the hospital were irregular and the treatment badly carried out at home between the visits to the hospital. Summing up, Dr. Kerr Love indicated the immediate steps to be taken for the prevention of acquired deafness to be: 1. The management of the ear complications of the infectious diseases by otologists. 2. The notification for the purpose of study and treatment of all forms of meningitis. 3. The medical inspection and treatment of the ear diseases of school children by otologists.

Passing on to the classification of deafness for the purposes of prevention, the lecturer divided deafness into: 1. Cases in which the deafness is undoubtedly acquired after birth. 2. Cases of sporadic congenital or infantile deafness. In these there were no cases of deafness either in the direct line or in the collateral branches of the family, although a brother or sister might be deaf. Many of these cases were, of course, congenital. 3. Cases of true hereditary deafness. These were all congenital, and the deafness was present in other branches of the family. There were two fallacies to be got rid of: 1. That the possession of a deaf brother or sister was by itself any proof of the heredity of the deafness of a deaf-mute child. 2. That slight deafness amongst the relatives of a deaf-mute child was any proof of the heredity of the deafness. There was no disease which commonly appeared in one generation as hardness of hearing and in another generation as deaf-mutism. If these restrictions were applied it would be found that the hereditarily deaf were a very small class. From replies he had received in answer to a circular he addressed to the head-masters of institutions in this country, in the United States of America, and in Holland, Dr. Kerr Love concluded that the present sources of information, the institution schedules, Census reports, &c., were very unreliable. The conclusion might be drawn, however, that backwardness was commoner amongst those whose deafness was congenital without being hereditary, and that true hereditary deafness was seldom associated with mental backwardness or physical inferiority.

As a correct classification must be the basis of any serious attempt to prevent deafness, Dr. Kerr Love said: "We must make the pathology of deafness, and not the

date of its occurrence, the basis of classification; we must have a strictly scientific definition of what the term hereditary as applied to deafness means; we must have a much better admission schedule, giving not only a careful record of the personal and family history, but containing the results of a careful clinical examination of every deaf child." Concluding, the lecturer contended that the institutions must extend their scope. They must follow the hospitals. The latter were at first but houses of refuge for lepers; then they became places of treatment for all kinds of medical and surgical cases; now they were attaining their highest functions, for within their walls were hatched and elaborated the preventive measures which would control, and to a large extent extinguish, disease. This had not interfered with the treatment in the hospitals; it had improved it. So it must be with the institutions for the deaf. They began as asylums for the deaf; now they were well-conducted educational establishments, but they must help to prevent deafness. The spirit of research must fill the institutions. This would not hinder education—it would help it; and though the institution for the deaf must, in the end, disappear, it would carry with it much of the disaster of child-deafness.

Lord Justice FLETCHER MOULTON, at the conclusion of the lecture, said that many of the audience had come to the meeting actuated by a feeling of enormous interest in, and sympathy for, the deaf. They had learnt in an interesting lecture how greatly the subject of the prevention of deafness had been neglected in the past. Dr. Kerr Love had shown how even the fundamental sorting or classification of the causes of deafness was uncertain and could not be accepted. In dealing with animated life real progress was only made when one had ceased to compare totally different things from a similarity in the symptoms. In the olden days a high temperature was always thought to indicate a fever. The only way was to attack the cause and not the symptoms; deafness was a symptom, and until they discovered the causes which produced the symptoms little progress could be made. The distinction between hereditary and congenital deafness when viewed in the light of biology was easily understandable. Hereditary deafness began at the earliest moment of life, while congenital deafness showed itself only at birth. He thought the bureau, which dealt with all who were deaf, no matter what the cause, was doing right in promoting scientific research into the causes of deafness. Death was not the worst thing that could happen, but misery in life; and if the bureau could lessen misery in life by preventing deafness it was doing as noble and as attractive a work as any of the societies which attempted to relieve and prevent sickness.

Mr. LEO BONN, the President of the bureau, in proposing a hearty vote of thanks to Lord Justice Fletcher Moulton for taking the chair and to the lecturer, referred to his lordship's unique knowledge of all scientific matters and sympathy in social problems. The bureau, he added, had received numerous letters of sympathy since the first lecture, and inquiries on all matters connected with deafness had been received. He felt that a great work lay before them, and could they but gain the interest of men such as Lord Justice Fletcher Moulton a future full of hope would be theirs.

Mr. B. ST. JOHN ACKERS cordially seconded the vote of thanks, which was carried unanimously.

Dr. KERR LOVE and Lord Justice FLETCHER MOULTON briefly responded.

OPHTHALMOLOGICAL SOCIETY.—A special meeting of this society will take place at 11, Chandos-street, Cavendish-square, W., on Thursday next, July 11th, at 5 P.M., to consider the question of amalgamation of the Ophthalmological Society of the United Kingdom with the Royal Society of Medicine. An ordinary meeting will be held the same evening at 8 o'clock, at which the following card specimens will be shown:—Mr. W. H. H. Jessop: Professor Gullstrand's Demonstrating Ophthalmoscope. Mr. E. Treacher Collins: A case in which an Intradural Tumour of the Optic Nerve was removed with Retention of the Eyeball five and a half years ago. Mr. G. T. Brooksbank James and Mr. A. Stroud Hosford will communicate a paper on the Operative Treatment of Glaucoma. The annual general meeting will be held immediately after the ordinary meeting.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

THE annual general meeting of this association took place at the Council House, Bristol, on June 25th, with Surgeon-General G. J. H. EVATT, C.B., in the chair.

The report of the Council for the last year and the balance-sheet were received and adopted. The following officers and Council were unanimously elected for 1912–13:—President: Surgeon-General Evatt. Chairman of Council: Mr. D. B. Balding. Treasurer: Mr. A. A. Napper. Honorary secretary: Dr. Major Greenwood. Auditor: Mr. A. Withers Green. Council: Mr. T. Lloyd Brown, Mr. W. Holder, J.P., Mr. George Jackson, Mr. T. Carey Barlow, Mr. J. B. Gidley-Moore, Mr. A. Withers Green, Dr. W. Brown, Mr. C. Biddle, Dr. A. Drury, and Dr. C. Thackray Parsons.

Mr. J. J. SIMPSON read a paper, entitled "The Poor-law Medical Service as Affected by the National Insurance Act." Mr. Simpson said he had been 37 years engaged in Poor-law work, and for 35 years had been actively connected with matters relating to the organisation of Poor-law officers. What they sought to discover was the effect of the Act on Poor-law administration, and consequently on the Poor-law medical and general service. This service had hitherto been responsible for the care and maintenance, and in a large number of cases the treatment and training, of some 895,000 poor in England and Wales. Only a small proportion of women would be assisted in any way by the Insurance Act, and very few of the children, and those only indirectly. Besides the aged, and permanently afflicted classes, and widows, and deserted women and their children, practically all that remained were the unemployed and unemployable, who would not in any way participate in the undoubted benefits, which the Act would provide for the artisan and all classes of workers. As regards the aged men and women, none of these now receiving relief, or requiring relief within the next few years, could secure any of the benefits provided under the Act. There were many things that might interfere with the full enjoyment of the benefit or with its adequacy in preventing need for Poor-law assistance. To begin with, there must be an absolute incapacity for work. If the disabled person had to enter a workhouse, or infirmary, or other institutions, the payment ceased, except in a few cases. In no cases could the guardians obtain any payment. Further, should out-relief be given the Act provided that benefit up to 5*s*. weekly was not to be taken into account by the guardians in fixing the relief. As to sick men and women, who numbered 50,000, relieved both in the infirmaries and workhouses and in their own homes, probably a fair proportion of these would be under the Insurance Act in future, and would therefore come off the Poor Law. Men who were able to be treated in their own homes, and who were of the regularly employed class, should not need much Poor-law assistance unless their families were very large. But even this class would not be all covered, because where the sickness was severe, or where much attention and care were required, it would be impossible to procure this at home; and the medical practitioner could not reasonably be expected to act as medical attendant and nurse, and in many cases removal to the hospital or infirmary would be essential. The question of arrears must also be borne in mind, and would prevent some portion of all classes from receiving the benefits specified in the Act, which would continue to be provided by the Poor Law. In the case of sanatorium benefit the number to be helped would not be a large proportion of the Poor-law cases; all help of this kind was to be given apart from Poor-law institutions. As to sick benefit and disablement benefit, it was doubtful if much appreciable diminution would be apparent in the burden of the Poor Law. The maternity benefit should undoubtedly reduce the demands on the guardians for assistance. In conclusion, the freedom of choice given to each insured person as regards his medical attendant might in time affect Poor-law methods.

Mr. C. E. S. FLEMMING (Bradford-on-Avon) read a paper entitled "Some Difficulties in the Practice of the District Medical Officer," Mr. Flemming said: In considering some of the difficulties that are more or less peculiar to the practice of Poor-law medical officers, I shall exclude

the work done at infirmaries, as that is so entirely different from what it is in the homes of the poor. The inducement to any work is some recompense or reward. I need hardly refer to the method of payment, which is quite unsatisfactory, as it does not even bear that ratio to possible attendance that even capitation payment does. Neither need I refer to the amount of payment; this is too notoriously insufficient. Moreover, the reward of money rarely affects directly the quality of professional work; of course, indirectly it does, as larger fees mean more time and better opportunity, both of which are essential for good work. The reward of gratitude, I believe, has a considerable influence in our work, but more influence still has the reward of success, even if that success is only a stepping-stone for an honourable ambition; success in making the sick and the infirm forget for a time their pain, for, as has been well said, the aim of every art, of every creed, should be to help the world to bear its pain. The aim of the whole art of medicine is to ease pain and to lengthen life, to give sight to the blind, hearing to the deaf, strength to the helpless. If this is the task and the pleasure of every member of our profession, how much of necessity must it be the purpose of those of us who have to watch the struggles of the poor to live, and who feel that those struggles must be lessened at whatever cost? If sickness and infirmity are hard for the rich to bear—the rich who have all that the world can give to ease their pain or distract their thoughts—how terrible must they be for the poor, who in their despair dread illness not chiefly for its pain or its discomfort, but because it means no work, no food. If the responsibility is great and the task arduous for the practitioner attending the well-to-do, how much greater must be the responsibility, how much more difficult the task of the practitioner attending the poor, for the means of treatment at his disposal are so much less.

What are the means that should be at our disposal for this purpose. First, because most important in the eyes of the ordinary guardian or patient, is the treatment by drugs. We know in the great majority of cases that, except as a variety of faith-healing or a mere artifice to mark time, this is valueless. And where drugs are really useful and happen to be expensive, as is often the case, their use is excluded because the salary will not permit of such an expenditure. Our next resource is what are called extras—stimulants and food. These, the latter especially, are what we most often want for the treatment of our patients, but you know the difficulty, the impossibility of procuring more than just enough to satisfy the conscience of the guardian but not the needs of nature. I know that there are real difficulties in the way of allowing ample nourishment for every pauper patient, and I see no immediate remedy. There might well be considerable improvement; for instance, the delay in getting necessities that are ordered could easily be prevented. The difficulty is ever to persuade officials of the need for hurry. Again, we want for our assistance better attendance on the sick and infirm. Skilled nursing is now available in many districts, and where it is, where really good nurses are provided, the sick rooms of the poor are wonderfully transformed; but this sort of attendance is only occasional and does not properly satisfy our most moderate demands. We want, also, for success in treatment, better surroundings for our patients—the comfort of cleanliness, warmth, air, sunshine, we as medical officers can do little to provide. We, in fact every medical practitioner, ought to have some authority to see that these things are provided where necessary for the health of the patient. Much is being done by Mr. Burns's Housing and Town Planning Act, but not enough—not nearly enough.

Could we do these things, control more adequately the feeding, nursing, and environment of the poor, we might plant hope and happiness where now is nothing but sorrow and despair. We should most certainly do our work with all the encouragement of the belief that it would avail something worth the toil.

Unfortunately, the official mind is too apt to look, not to the relief of pain, but to the punctilious attention to routine. The filling in of a weekly report is considered a much more estimable quality in a medical officer than the careful diagnosis and treatment of disease. This conception of our duties must in some degree account for that most unworthy stigma which too often attaches to the term "the parish doctor." But probably our greatest difficulty is really an unavoidable, but too vivid, appreciation of the feeling that nobody cares. The pauper himself, in the terrible struggle against the overwhelming odds of his sunless life, has lost all hope. Too often the help to maintain him is to his relations nothing but a burden, an unloving duty, and to the relieving officer or the guardian he represents a source of expense that in the interests of the ratepayer should be treated with economy before sympathy, lest others be encouraged to do likewise. The dread of making medical benefit attractive—that is, really efficient—is almost incredibly apparent in the report of the last Poor-law Commission. You feel as you read it that the refrain of those to whom was entrusted the care of the poor was ever, "Don't make the pauper's life too good," as if they all were criminals, and not for the most part the unwilling victims of a social system that should long since have been reformed. I say their refrain "was ever," for surely the public conscience is now awakened to a proper sense of the rights, the necessities of every member of the community, to a knowledge of the fact that for pauperism, as for the plague, prevention is the best cure, but when prevention has been neglected it is the duty of the State to relieve properly the distress and illness that must ever follow neglect.

I fear that I have drawn a gloomy picture of the prospect of improving the conditions of our practice among the poor; but if our hopes are realised, if the social reforms that are being enacted, including National Insurance, should work well, they must be conducted in conformity with the opinion of the profession that knows best the conditions and the necessities. If these reforms work well we may look forward to a time when we can carry out our work not only to the satisfaction of a liberal and benevolent profession, but with the prospect, the certain prospect, of doing it for the happiness and the benefit of our fellow men. If in the not very distant future we have no proper existence as Poor-law medical officers, because there are no destitute persons, we shall not only receive payment for our attendance on the same people in their improved circumstances, and at a rate having some sort of proportion to our work, but we shall have the satisfaction of knowing that our work may be not only, as at present, the best that circumstances will allow, but the best that our science and art can give.

A discussion then took place on both papers.

Dr. MAJOR GREENWOOD said that it was evidently Mr. Simpson's opinion that very little immediate change in the Poor-law service would be brought about by the Act. This would be lessened if, as was very likely, the medical benefit was abolished. Mr. Flemming had given a very interesting account of much that every Poor-law medical officer was only too familiar with. He agreed with him as to the inefficacy of much of the drug treatment in Poor-law medical practice, and considered one of the greatest defects of the Insurance Act was that it tended to multiply outside the Poor-law much of the drug treatment Dr. Flemming condemned. Again, great care was necessary, as all Poor-law administrators knew well, that Poor-law relief should not be given too freely and too easily. Many knotty problems centred round this.

Mr. C. H. W. PARKINSON (Wimborne) spoke of the value of a knowledge of the conditions of the district where applicants for relief resided. Bad housing was complained of, but bad habits of the people were worse.

Mr. HOLDER (Hull) urged that medical men should go on councils and boards of guardians, the lay members of which were anxious to hear and act on their advice. He thought that the Insurance Act would reform the poverty of the nation, and compel those that received benefits to pay for them in part. The Act must insure the reorganisation of the payment of Poor-law medical officers, and would relieve them of some of their work; it saved them from attendance on tuberculosis cases, and a fair amount of time would be afforded for the diagnosis of disease. The chairman, conveying the thanks of the meeting to the readers of the papers, expressed his belief that better treatment all round would result from the Act.

Mr. PARKINSON opened a discussion on the Necessity of Union among all Medical Officers holding Part-time Appointments. He thought there was a danger of part-time men being altogether superseded by whole-time men. He suggested that the several sectional associations of medical men

should appoint a committee to decide upon joint action to protect their interests when any section was assailed.

Dr. MAJOR GREENWOOD said that the point Mr. Parkinson drew attention to was detrimental to all general practitioners, and was often bad for the public. He moved:—

That this meeting of the Poor-law Medical Officers' Association of England and Wales is in favour of a closer union between all associations of part-time medical officers, and instructs the council to do all in its power to favour that union.

Dr. BALDING seconded, and the resolution was carried almost unanimously.

The proceedings closed with a vote of thanks to the chairman and to Dr. W. Brown for the admirable way in which he had organised the meeting. The members present were then entertained by the Lord Mayor to tea, and the annual dinner of the association took place at the Royal Hotel, Bristol, the same evening.

LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Reorganisation of Medical Inspection and Treatment.

THE Establishment Committee reported to the London County Council on July 2nd with reference to the reorganisation of the Public Health Department, resolved upon last year.[1] The object of the rearrangement was to ascertain whether a system of full-time school doctors would be better than part-time officers for securing closer association of the work of medical inspection with that relating to infectious diseases, and more effective coöperation with the medical officers of health of the London boroughs. The committee stated that the experiment had been tried in a portion of East London and had proved highly satisfactory. Since August, 1911, it had been necessary, in order to meet the requirements of the Board of Education, to examine the children on their entering school; and, moreover, the record card had been superseded by the more detailed schedule recommended by the Board, the examination of individual children for this reason taking a longer time. Further demands upon the time of the medical staff had also been made in connexion with the examination of "special cases," and to provide for the "re-inspection" now required to earn the new grant promised by the Board of Education, as to which the Education Committee reported recently,[2] a considerable increase in the quarter-time staff would be required. The Education Committee, however, recommended an extension of the whole-time system to the whole of London. For the purposes of supervision the metropolis would be divided into four divisions, a divisional medical assistant being attached to each. At present there were three assistant medical officers engaged on work of a supervisory nature, one giving full-time, one half-time, and one part-time, so that the services of more than two additional medical assistants would be required.

In addition to supervision, the services of the divisional medical assistants could be utilised with great advantage in connexion with the control of infectious diseases. Under existing arrangements all examinations relating to infectious diseases were dealt with by one assistant medical officer, and all necessary bacteriological work was done by him. It was impossible for one officer to cope adequately with this work, and it would be an advantage if the examinations of the children in the schools were carried out locally under the superintendence of the divisional medical officers, and any culture tubes inoculated were forwarded to the central offices for bacteriological examination. Such an arrangement would enable the schools in which infectious disease was prevalent to be more effectively supervised than was possible at present, but it would lead in the case of diphtheria to a great increase of bacteriological work. The assistant medical officer engaged in this work should have the services of a well-trained laboratory assistant, for whom the committee suggested a remuneration of £2 a week.

Having regard to the increase of work necessitated by the supervision of playground classes, the examination of children notified as being in contact with tuberculosis, and proposals for the medical supervision of dull and backward children, it was desirable in order that time might be given to this work to attach to each division one quarter-time school doctor to assist with some of the routine inspection.

At present, the committee stated, pupils at institutions for higher education were periodically examined, and also scholars in trade schools and scholarship candidates. This work had been carried out by part-time doctors, but the Education Committee had reported that these arrangements were not completely satisfactory as some of the school doctors conducting the examinations did not supervise the candidates after allocation to training colleges, secondary schools, &c., and consequently information obtained was not used to the best advantage. If the examinations for the awards and the subsequent inspections were carried out by the same officers the work would be coördinated, greater efficiency would be secured, and a financial saving would be effected. It was proposed that these examinations should be carried out by two full-time medical assistants at salaries of £400 a year, rising to £500. The medical inspection work at special schools had also increased, but as a result of a re-allocation of work in connexion with the new staff arrangements now suggested it would not be necessary, for the present at any rate, to make any addition to the medical staff. It might be necessary, however, to revise the scale of salary attached to the position of the full-time assistant medical officer engaged on this work, which was of a special character.

The Finance Committee, reporting on these proposals, remarked that the Board of Education drew a distinction between (1) routine medical inspection; (2) work ancillary to, or associated with, medical treatment; and (3) medical treatment proper, and no grants were to be made under the promise recently given in the House of Commons in respect of routine medical inspection, though the Board, in determining the amount of the grant for medical treatment and ancillary or associated work, would have regard to the character and completeness of the arrangements and degree of efficiency with which medical inspection was carried out. The Finance Committee thought it unsatisfactory that the intentions of the Board were not made clear and definite. Although local authorities were ostensibly left a certain amount of freedom to make provision for this new medical work in their own way, in the end the Board might disapprove the methods adopted and withhold the grant. As regards the present proposals the ultimate additional annual expenditure was estimated at £4584; these proposals, however, were by no means exhaustive, and others involving considerable additional outlay might be expected to follow. The total amount now expended annually on medical work in the schools would be: medical inspection, £31,000; medical treatment, £29,000; a total of £60,000. The present proposals related only to the inspection of school children, which was a compulsory duty, but as the Board's regulations referred also to medical treatment—an optional service—the Finance Committee thought it necessary, in the financial interests of the Council, to state that in its opinion the Council's policy in dealing with any proposals for placing the medical treatment of children on a permanent basis should be determined largely by the treatment London received in the allocation of the grant now promised.

The Establishment Committee made a number of recommendations on the lines of its report, and incorporated those of the Education Committee set out in THE LANCET of June 22nd, p. 1709. These were all approved by the Council.

London Coroners' Districts.

The Council on Oct. 11th, 1910,[3] presented a petition praying that the King would sanction (1) the transfer of the boroughs of Paddington and St. Marylebone from the central to the western coroners' district; (2) the transfer of the parish of St. Luke, Finsbury, from the north-eastern to the central coroners' district; and (3) the adjustment, where necessary, of the boundaries of the various coroners' districts so that they should coincide with the boundaries of the metropolitan boroughs. The Order in Council giving effect to these proposals having now been issued, the Council on July 2nd formally assigned the districts as altered as follows: Eastern district, Mr. Wynne Edwin Baxter; north-eastern, Dr. W. Wynn Westcott; central, Mr. Walter Schröder; western, Mr. C. Luxmoore Drew; southern, Mr.

[1] THE LANCET, July 23th, 1911, p. 311.
[2] THE LANCET, June 22nd, p. 1709.
[3] THE LANCET, Dec. 3rd, 1910, p. 1628.

George Perceval Wyatt; south-western, Mr. Samuel Ingleby Oddie; and south-eastern, Mr. H. R. Oswald.

Mr. S. Ingleby Oddie and Mr. C. Luxmoore Drew have appointed Dr. Henslowe Wellington and Mr. Arthur D. Cowburn, respectively, as their deputies.

Appointment of a Psychologist.

The Education Committee on June 26th considered the question of the examination of pupils in public elementary schools nominated for admission to schools for mentally defective children. Various subcommittees reported having discussed proposals for the appointment of additional medical officers, but they were convinced that such arrangements would not entirely meet the case. A careful examination by a psychologist of the pupils nominated for admission to the special schools would show that the admission of some of the children might be advantageously delayed until they had been under special observation for a period. The General Purposes Committee therefore recommended that a psychologist be appointed as a half-time officer in the Education Officer's Department at a salary of £300 a year. The committee approved the proposed appointment, and decided that it should be made for three years.

The Montessori System of Education.

The Education Committee has received a letter from the secretary of the Montessori Society of the United Kingdom suggesting that the Council might be willing to assist in introducing into England an experiment of this system of education. The Elementary Education Subcommittee explained that Madame Montessori is an Italian lady who, in her studies as a medical doctor, was brought into contact with mentally defective children and became greatly interested in them. Her investigation into the methods adopted with regard to such children led her to the conclusion that it was necessary to allow the child to develop in its own way, along its own lines. Madame Montessori's researches progressed from the mentally defective to children of normal mental power, and she was given permission to carry out the practical application of her ideas in schools in Rome. The central principle of the system is to give the child "an environment which liberates his personality." Children are allowed to move about freely in the school-room; they may sit where they wish and act as if living in a room at home. The teacher is a passive agent rather than an active one. The subcommittee was of opinion that the system deserved a trial, and recommended that facilities be afforded in one of the elementary schools. The committee agreed to an experiment in the system being made.

EPSOM COLLEGE.

ANNUAL GENERAL MEETING.

THE annual general meeting of the governors of Epsom College was held on June 28th, at 37, Soho-square, W., Sir HENRY MORRIS, the treasurer, being in the chair. He was supported by Sir W. S. Church, Sir Alfred Pearce Gould, Sir Shirley Murphy, Sir James Reid, Mr. J. Astley Bloxam, Mr. Andrew Clark, Dr. W. Collier, Dr. Clement Godson, Dr. F. Needham, Mr. Purnell Purnell, Dr. Guthrie Rankin, Dr. Frederick Taylor, Dr. Nestor Tirard, and a number of other governors of the College.

The annual report stated that at Dec. 31st, 1911, the amount owing to the College bankers had been reduced to £2800, but some time would elapse before this liability could be liquidated, as the Council had been compelled to obtain further loans to enable them to carry out urgently needed structural alterations at the College, comprising the rearrangement of the prefects' studies, and the provision of a much-needed subsidiary dining-hall, an additional bath-room, larger and better situated box-rooms and boot-rooms, and more suitable common room accommodation for the masters. The question of undertaking these works had received the careful consideration of the works committee, which had come to the conclusion that in the interests of the College there ought to be no further delay in carrying them out. There were on the books of the College 47 ordinary pensioners, 9 "Pugh" pensioners, 10 "France" pensioners, 14 "Da Silva" pensioners, 3 "Morgan" annuitants, 5 "Highett" pensioners, of whom two receive £30 a year and three receive £10 a year, 1 "R. R. Cheyne" annuitant, and 4 "Brodie Sewell" pensioners. The election that day would bring the number of ordinary pensioners up to 50. In regard to the school, both the general work and the discipline had been, as usual, most satisfactory; games had been played with success; the school institutions were in a flourishing condition; and the number of boys in the College was the highest on record. The General Council of Medical Education and Registration of the United Kingdom had added the name of Epsom College to the list of recognised institutions approved of by that Council as places at which medical study might be commenced. The report further stated that the thanks of the governors were due to Sir Henry Morris for having so indefatigably urged upon the General Medical Council the expediency and the justice of permitting adequately equipped public schools to be approved as institutions in which the preliminary sciences might be studied, and the time given to such studies counted as part of the first year of the medical curriculum, with the result that many of the great schools of the country had been duly recognised. For this and the many other services which Sir Henry Morris had so freely given to the College, the Council proposed that he should be elected a Vice-President of the College. In conclusion, the report stated that 7 boys had passed the whole or a part of the first examination for medical degrees of the University of London; 12 boys had passed the matriculation examination of the same University; 11 boys had gained the higher certificate of the Oxford and Cambridge Schools Examination Board; 18 had obtained school certificates; and 15 had gained lower certificates. Last year the Haviland Exhibition was awarded to G. M. Kendall, and the Jenks Memorial Scholarship was given by the Royal College of Physicians to A. Ll. Davies.

In moving the resolution as to the adoption of the report Sir HENRY MORRIS said that at the annual meetings two things had to be done: first, to report to the meeting and to make publicly known the result of the ballot which had just taken place for pensioners and foundationers; and secondly, to present to the governors the report of the Council for the past year on the College and its medical foundation. The first report would be received, as all such reports were, with feelings of gladness on the part of some and of disappointment on the part of others, and those, he feared, were the larger number. With regard to the second report—namely, that of the Council to the governors—concerning the Royal Medical Foundation and the College, he was glad to be able to say that it was in all respects satisfactory. With regard to the Royal Medical Foundation, although a number of the pensionerships and annuities were secured by investments derived from legacies, it must be borne in mind that 50 ordinary pensioners and 50 foundation scholars had to be provided out of the contributions to the Royal Medical Foundation, and to do this a sum of close upon £5000 a year had to be obtained through these means. He therefore hoped that the local secretaries would continue to render the fund the advantages hitherto derived from their valuable services, and that other friends of the College would assist by their efforts to induce those in and out of the profession who are not subscribers to become so. With regard to the school, he was pleased to report that it was in every respect successful, the tone and discipline and general work being all excellent. Further, as stated in the report, the school games were flourishing, and all the school institutions were in a thriving and robust condition. Last, and not least, the number of boys in the College was the highest on record, and there was a waiting list for entrance. But the governors would ask, if this were the case, was not the College making a good profit on its school account? His answer was, No. There was a profit on the total receipts and expenditure, but to make a profit on the educational work was not an object with the Council. Their aim was to provide as good an education as it was possible to obtain in any other secondary school in the country at as cheap a rate as possible to the parents or guardians of the boy. It might be necessary before long to raise the charges for the education, and indeed the matter had more than once been under consideration; but this would be warded off as long as possible, and when done, if done, would not be for the purpose of making a profit or storing up capital.

The report having been adopted, various resolutions were passed, including one electing Sir Henry Morris a Vice-President of the College.

The list of candidates elected to pensionerships and foundation scholarships will be found in our advertisement columns.

HEALTH EXHIBITION AND CONFERENCE.

THIS exhibition and conference were held in coöperation with the National Health Society from June 24th to 27th at the Royal Horticultural Hall, Westminster. The exhibition was opened by the Mayor of Westminster, and a large number of medical men gave it their support by delivering lectures and taking part in the discussions that followed. Demonstrations of physical drill were organised by the National League for Physical Education and Improvement.

The objects of the exhibition and conference alike were to introduce to the public new provisions that have been made in the interests of sanitation and to discuss the health questions which were their origin. Various inventions were consequently on view for dealing practically with the drawbacks of bad air and of inadequate domestic equipment. The filtered air system invented by Mrs. Harry Morris is capable of being applied easily to any sort of room, and certainly makes for health and cleanliness. The filter consists of a translucent fabric, impregnated with an antiseptic if necessary, which is placed in front of the window in such a way that while acting as a curtain it at the same time allows filtered air to pass through the open window. The invention can be adapted to all kinds of windows, those of private dwellings, offices and factories, and when desired the filtering medium can be hidden by screens. The "Inter-oven" is a sitting-room grate which can be converted into a stove with hotplate oven and circulating boiler by the alteration of a lever. This in small households would certainly make for economy in coal and service. The appliance is easily fitted to any grate.

"Wiso Limited" (Victoria-street, S.W.) had on view a water-softener and purifier, which is simple in construction and can be easily affixed to the main supply-pipe. The useful exhibit of the Coal Smoke Abatement Society (Victoria-street, S.W.) had also its practical as well as its educational side. Here was to be seen a group of models illustrating the volume of the annual London soot-fall; a soot gauge, one of which was used in the recent LANCET Commission on the Soot-fall of London; and many photographs and diagrams showing the harmful effects of smoky air upon all things, organic and inorganic, which have to abide beneath its pall. At the stall of the Gas Light and Coke Company (Horseferry-road, S.W.) there were illustrated in many ways the economical and sanitary advantages of the use of gas-lighting and heating, this being one of the chief lessons that are taught by the work of the Coal Smoke Abatement Society.

The nursing of children and the care of children generally were fully illustrated at the exhibition, and many appliances were on view that should assist the public to lessen the toll that is paid in the early years of child-life. At the stand of the National Society of Day Nurseries were shown a large variety of appliances, clothes, and furniture which have proved in the hands of the organisation useful in dealing with children; and at the Model Infant Consultation lent by the St. Marylebone General Dispensary there was a similarly useful display. A model of the Sanatorium for Children Threatened with Consumption, at Harpenden, was on view, and some very interesting exhibits were sent by the Paddington Dispensary, while the Nurses' Social Union showed a number of model appliances helpful in the daily work of the nurse. A small contrivance which escaped the pages of the catalogue deserves mention here—the Nurse Denyer's "Health Cot." It consists of a wooden stand which folds into a small compass, and for travelling purposes can be placed within a makeshift cot, the cot being one half of a rush basket of the sort that, furnished with a rug-strap, makes a very popular form of hold-all called a "Japanese hamper." This, together with her outfit and appliances, the nurse can carry about with her, and lend to any mother so poor as to have no cot of any kind. The idea is a good one, and the makeshift "cot" is certainly to be preferred to the usual banana box or soap-box, useful as those things have proved on occasion. The National Association for the Feeble-Minded (exhibits from the Princess Christian Farm Colony), the Incorporated Association for Promoting the General Welfare of the Blind, and the National Health Society were all well represented, as was also the City of Westminster with maps, health charts, systems of indexing, and other things used in connexion with the Health Society belonging to that corporation. Baby incubators and bacteriological apparatus were shown by Messrs. Charles Hearson and Co. (Regent-street, W.).

A bubbling fountain, lent by the Royal Worcester Corset Manufactory, of Worcester, Mass., U.S.A., proved a neat invention. These appliances fitted to a drinking trough throw up a stream of water with just sufficient force and at a convenient height to enable a drinker to lean slightly over the basin and receive the water into his mouth. By their use the drinking-cup is abolished. We are informed that they are in extensive use in America, and in the interests of health we should like to see them installed in some of the public places in this country.

RECENT SANITARY REFORMS IN NOTTINGHAM

Abolition of Pail-closet System.

THE information laboriously collected by Dr. P. Boobbyer since he was appointed medical officer of health of the city of Nottingham in 1889, on the subject of the relative incidence of enteric fever, epidemic diarrhœa, and other forms of disease upon houses served by different types of closets, is now quoted in every text-book of public health, and has made the extensive use of the "pail-closet system" in Nottingham familiar to all who have studied the subject. In part the persistence of the system has been due to the excellence of the municipal arrangements. The town council has provided pails of a special pattern, and a large and well-organised scavenging and cleansing staff, while it has spared no expense to remove the principal defects of the pail system, so far as these are capable of removal. The fact remains, however, that the records of the pail-closeted houses have been consistently bad year after year. In 1910, to take the last available returns, one case of enteric fever occurred for every 474 houses out of the 36,015 which have pail closets, as against one case for every 1356 houses out of the 23,058 provided with water-closets. So also with epidemic diarrhœa. This disease in former years showed much the same excess in Nottingham and Leicester when both were "dry closet" towns, but since the steady conversion of dry closets into water-closets in Leicester the excessive diarrhœa mortality of that town has steadily declined, while that of Nottingham has shown no such diminution. It must be a source of much well-deserved satisfaction to Dr. Boobbyer that as a result of his last report on the subject the town council has decided upon a new policy which involves the active suppression of all pail closets in the city. Their conversion into water-closets is to be undertaken in batches in certain working-class neighbourhoods where the houses are in sufficiently good sanitary condition to ensure them immunity from interference by the housing committee, but where enteric fever is frequently prevalent. Owners of property are to be offered a subsidy towards the cost of conversion, and this will entail considerable expense. It is highly probable, however, that this will be balanced by saving in the heavy cost of refuse collection which the pail system entails.

Clearance of Insanitary Area.

A further satisfactory evidence of the activity of the Nottingham corporation in sanitary matters is afforded by their decision, on the advice of the housing committee and the medical officer of health, to make a complete clearance of an unhealthy area comprising about 600 houses in the neighbourhood of Carter Gate. Some two-thirds of these dwellings are houses built back-to-back or without a back outlet; they have many defects, and Dr. Boobbyer reports 201 as at present not only unfit for human habitation but also as beyond repair. He has shown besides, from the figures of the last three years, that the crude general death-rate, the infantile death-rate, and the death-rates respectively from the principal zymotic diseases and phthisis have all been in substantial excess in the Carter Gate area—sometimes more than double that of the city as a whole. It is noteworthy that in deciding upon an extensive demolition and rehousing scheme in this instance, as well as in resolving to abolish pail closets, the town council appears to have been

influenced by the provisions of the National Insurance Act, by which a municipality may be held financially responsible on account of excessive sickness caused by the insanitary condition of any of its districts. If this part of that highly controversial piece of legislation is to have the effect of stimulating local authorities in this way, there is something to be said in favour of its sanitary clauses.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are among the amounts received up to June 28th at the Mansion House in addition to those published in our issue of last week. The total is now about £38,000.

	£	s.	d.
Christ Church, Lancaster Gate	949	0	0
Holy Trinity, Sloane-street	408	0	0
St. Peter's, Eaton-square, with St. John's, Wilton-road ...	392	0	0
St. Mary Abbots...	376	0	0
(Kensington Parish Church, £259; St. Paul's, Vicarage Gate, £73; Christ Church, Victoria-road, £44)			
St. Mark's, North Audley-street	257	0	0
St. Peter's, Cranley Gardens	212	0	0
Holy Trinity, Kensington Gore	154	0	0
Holy Trinity, Tulse Hill	130	0	0
St. Mary's, Bryanston-square	115	0	0
St. Stephen's, Gloucester-road	111	0	0
Sir Savile Crossley, Bart., &c.	100	0	0
Christ Church, Gipsy Hill	88	0	0
St. Andrew's, Leytonstone	80	0	0
Liberal Jewish Synagogue, Hill-street, N.W.	74	0	0
St. Peter's, Bayswater...	70	0	0
St. Paul's, Upper Norwood	62	0	0
Hampstead Parish Church	58	0	0
St. John's, Bromley, Kent	56	0	0
St. Paul's, Beckenham	53	0	0
St. James's, West Hampstead	51	0	0
St. Andrew's, Well-street	51	0	0
Miss M. E. Druce	50	0	0
Mr. Norman McCorquodale	50	0	0
Church of Immaculate Conception, Farm-street	50	0	0
Stamford Hill Congregational Church	49	0	0
Lewisham Parish Church	48	0	0
St. Stephen's, Regent's Park, and Missions	44	0	0
Hayes Parish Church	41	0	0
St. Saviour's, Paddington	40	0	0
Holy Trinity, Upper Tooting	39	0	0
Dulwich College Chapel	39	0	0
St. Paul's, Haringay	38	0	0
Christ Church, Brondesbury...	38	0	0
St. John's, Notting Hill	37	0	0
St. James's, Hatcham	36	0	0
St. Mark's, Surbiton	36	0	0
Bromley Congregational Church	36	0	0
Camden Church, Camberwell	35	0	0
St. Paul's, Camden-square	34	0	0
St. Matthew's, Brixton	34	0	0
St. Mary with St. Andrew's, Acton	33	0	0
St. Luke's, Battersea	32	0	0
St. Matthew's, West Kensington	30	0	0
St. Matthias, Earl's Court	30	0	0

MEDICINE AND THE LAW.

Tuberculosis and Cement Dust.

AT the Gloucestershire assizes, which were recently held before Mr. Justice Phillimore and a special jury, a pharmacist brought an action to recover damages for personal injuries from the Oxford Portland Cement Company. For the plaintiff it was contended that, through reasonable and proper precautions not having been taken by defendants in their works, the plaintiff inhaled dust to such an extent as to cause pulmonary tuberculosis. The plaintiff stated that people had died from tuberculosis in the house in which he lodged. The medical attendant said he was of opinion that plaintiff's condition was very largely due to, or caused by, his occupation. For the defendant company it was contended that plaintiff's illness was not caused by his being employed in this dusty work, but through his living in a house where tuberculous infection was present. The medical inspector of factories did not think that cement dust could produce fibroid phthisis, which was what the plaintiff was said to be suffering from. Eventually a verdict was returned for the defendants.

Falsely Pretending to be a Medical Man.

At Edinburgh recently Sheriff-Substitute Orr sentenced to a maximum punishment of three months' imprisonment a rogue, described as being elderly and well-dressed, for obtaining board, lodging, clothes, tobacco, and money loans, of the total value of about £20, by falsely pretending that he was a medical man, "Dr. Hall of London." The story told appears to have been of the usual simple type—that the "doctor" was taking a holiday with his wife and expecting remittances which did not arrive. He also pretended to one shopkeeper that he was Dr. Hall of an address in Edinburgh, where, in fact, he was staying. The Sheriff-Substitute expressed surprise at the leniency of the prosecution in allowing the matter to be dealt with in a court of summary jurisdiction, and the sentence passed was undoubtedly fully deserved. The fact, however, that the frauds punished extended over a period of about two months shows a certain amount of guilelessness and lack of resource on the part of the persons defrauded. It is easy enough for a plausible rascal to pretend to be a medical man for a day or two, and even to give himself a false name and identity, but it is almost as easy to test the accuracy of his story. Moreover, a man who cannot give a cheque that will be honoured, and is expecting remittances that do not come, is hardly the person to be enjoying a holiday at a distance of several hundreds of miles from his home.

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On the Sanitary Circumstances and Administration of the Urban District of Ince-in-Makerfield, by Dr. E. P. MANBY.[1]—The occasion of this inquiry was the unduly high rate of mortality among infants which has prevailed in Ince for many years. The district is inhabited principally by coal and iron workers; its population at the 1911 Census was 22,038. The average infant mortality-rate per 1000 births for the ten years 1899–1908 was 199, and in 1909, 1910, and 1911 respectively the rate was 212, 165, and 184. No doubt these high rates are in part to be attributed to ignorance or neglect on the part of mothers of the working-class households, and the recent appointment of a health visitor, which Dr. Manby reports, may effect much improvement in this direction. But it is clear that the conditions of the dwellings and their surroundings are such that the remedy lies principally in active municipal administration, which hitherto has been signally deficient. Many houses are dirty and need thorough stripping and cleansing. Backyards are, as a rule, unpaved; they allow water to accumulate in pools; and the surface is often contaminated with fæcal matter and refuse of all sorts. Most houses abut on unpaved common yards, in which these objectionable features are accentuated. There are no fewer than 2680 privy-middens in Ince, and some 1300 houses are without separate closet accommodation. There is hardly a midden in the place which is not so constructed that the scavenger has to get inside it to shove out the filth, which is often deposited on the adjoining ground surface, and freely pollutes the soil about the dwellings. Flies are present in abundance in these middens and in the houses during warm weather. The district council has a single sanitary inspector, reported to be altogether overburdened by the work of his office. Dr. Manby makes various recommendations to the local authority for improving the present state of affairs, particularly by appointing a sufficient sanitary staff, using the powers which they possess under Section 39 of the Public Health Acts Amendment Act, 1907, to obtain the systematic conversion of privy-middens to water-closets and providing proper receptacles for house refuse. It is noteworthy that Dr. Manby frequently refers to the continued existence of unwholesome conditions in this district which were fully described by Dr. Franklin Parsons in reports made to the Local Government Board as long ago as 1879 and 1886. The pressure exerted by the Local Government Board in the interval does not appear to have been very effective, and it may be hoped that it will now be renewed with more satisfactory results in view of the recent evidence of local apathy in sanitary matters.

On the General Sanitary Circumstances and Administration of the Shaftesbury Rural District and of the Borough of Shaftesbury, by Dr. F. ST. GEORGE MIVART.[2]—Dr. Mivart's

[1] New Series, No. 65. London: Wyman and Sons, Fetter-lane; Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. Price 2d.
[2] Ibid., No. 67. Price 5d.

report deserves attention from those who are interested in the problems of housing in rural districts. In the part of Dorsetshire of which he writes cottages for the labouring class are scarce, and in the most populous parish, Gillingham, the scarcity has become acute and is the cause of considerable hardship. Rents are high and rising higher, with the result that "miserable squalid hovels" are tolerated in order to provide shelter. In Gillingham cottages containing "one room up and one down," the latter being, perhaps, divided by a screen or partition, command rents of 2*s.* 3*d.* and 2*s.* 6*d.* per week, with a tendency to increase. In many cottages such as these the bedrooms, and often the entire cottage, are without any back window or even without any outlet at the back. The bedrooms have tiny windows and are frequently unceiled. They are of low pitch, even less than 6 ft. Where a death occurs the body must be brought down before rigor mortis sets in, as neither the staircase nor the window will allow the passage of an adult-size coffin. Overcrowding is very prevalent, and little or nothing is done to check it, as no further accommodation appears to be available. "In many of these cottages inhabited by families," Dr. Mivart remarks, "the ordinary decencies of civilisation cannot be observed," and of this there can be little doubt when reference is made to the examples which are detailed in the report. There is doubtless room for difference of opinion as to the extent to which Mr. Burns's Housing and Town Planning Act affords sufficient means for dealing with the conditions here described, but it is evident that no attempt has been shown by the local authority to make the best of the powers which it possesses in this matter. Dr. Mivart advocates systematic house inspection, combined with the provision by the district council of a sufficient number of new cottages. At present, whenever a decent cottage is likely to fall vacant a number of people are after it at once. "A supply of cottages at from 3*s.* 6*d.* to 5*s.* a week would set free a number of cheaper dwellings which would then be available for some of the poorer labourers unable to pay more than from 2*s.* to 3*s.* per week." We would be glad to see the matter pressed further, and a report of this nature followed by a definite scheme prepared by the experts of the Local Government Board in consultation with the local council. The central authority, besides being ready with criticism and adjudicating on formal appeals, might also do much good by selecting a few typical backward rural districts and demonstrating precisely what should be done. The water-supplies of the Shaftesbury rural district in many cases need attention, and serious inconvenience and risk of water-borne infection were entailed during the dry summer of last year. The district has a large trade in milk, much of which is sent to London, and it is unsatisfactory to read that there are at least 75 cowkeepers, sellers of milk, on whose premises nearly 2000 cows are kept, who are not even registered with the local authority. Cowsheds for the most part are reported as defective through the foul condition of walls and floors, want of ventilation and light, deficient cubic space, and defects or absence of drainage. Pigs are kept in the same sheds as milch cows, and there is frequent want of water at the farms. Here, again, faulty though the powers of the district council may be, much could be done under existing regulations which has hitherto been entirely neglected.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 95 largest English towns, having an estimated population of 17,639,816 persons in the middle of this year, 7950 births and 3763 deaths were registered during the week ending June 29th. The annual rate of mortality in these towns, which had steadily decreased from 13·0 to 11·6 per 1000 in the five preceding weeks, further declined to 11·1 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these 95 towns averaged 13·1 per 1000, while in London during the same period the average death-rate did not exceed 12·4 per 1000. The annual death-rates last week in the several towns ranged from 3·2 in Bournemouth, 4·2 in Hornsey, 4·9 in Gillingham, 6·1 in Swindon, and 6·2 in Lincoln, to 16·6 in Oxford, 17·4 in Wigan, 17·6 in Bootle, 17·7 in Gateshead, and 19·7 in Rotherham.

The 3763 deaths from all causes were 145 fewer than the number in the previous week, and included 376 which were referred to the principal epidemic diseases, against 423 and 390 in the two preceding weeks. Of these 376 deaths, 173 resulted from measles, 75 from infantile diarrhœal diseases, 61 from whooping-cough, 31 from diphtheria, 21 from scarlet fever, and 15 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases was equal to 1·1 per 1000, against 1·3 and 1·2 per 1000 in the two preceding weeks. The deaths attributed to measles, which had been 174, 201, and 172 in the three preceding weeks, were 173 last week, and caused the highest annual death-rates of 1·6 in Leeds, 1·8 in Gateshead, 2·0 in Cardiff, 2·3 in Liverpool, 2·8 in Ipswich, 3·2 in Merthyr Tydfil, and 4·1 in Rotherham. The deaths referred to infantile diarrhœal diseases, which had declined from 68 to 55 in the three preceding weeks, rose to 75 last week, and included 17 in London, 12 in Liverpool, 5 in Birmingham, 5 in Manchester, and 3 in Swansea. The fatal cases of whooping-cough, which had been 98, 86, and 96 in the three preceding weeks, declined to 61 last week; 14 deaths were registered in London and its suburban districts, 6 in Liverpool, 4 in Manchester, 3 in Great Yarmouth, and 3 in Bristol. The deaths attributed to diphtheria numbered 31, or 3 fewer than the average in the four preceding weeks, and included 4 in London and 2 each in Portsmouth, Southampton, Birmingham, Liverpool, Manchester, and Sheffield. The deaths referred to scarlet fever, which had been 23, 26, and 22 in the three preceding weeks, were 21 last week; 5 deaths were recorded in London, 3 in Liverpool, and 2 in Birmingham. The fatal cases of enteric fever, which had declined from 22 to 9 in the three preceding weeks, rose to 15 last week, and included 3 in Bradford, 2 in Liverpool, 2 in Sheffield, and 2 in Hull.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospital, which had steadily increased from 1213 to 1358 in the six preceding weeks, had further risen to 1398 on Saturday last; 195 new cases of this disease were admitted to these institutions during the week, against 185, 179, and 188 in the three preceding weeks. These hospitals also contained on Saturday last 882 cases of diphtheria, 603 of measles, 453 of whooping-cough, and 33 of enteric fever, but not one of small-pox. The 933 deaths from all causes in London were 17 in excess of the number in the previous week, and were equal to an annual death-rate of 10·8 per 1000. The deaths referred to diseases of the respiratory organs, which had been 140, 153, and 112 in the three preceding weeks, rose to 126 last week, and were 9 in excess of the number registered in the corresponding week of last year.

Of the 3763 deaths from all causes in the 95 towns last week, 180 resulted from different forms of violence, and 353 were the subject of coroners' inquest. The causes of 27, or 0·7 per cent., of the deaths registered were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified last week in London and its 14 suburban districts, in Leeds, Bristol, Bradford, Hull, Newcastle-on-Tyne, Nottingham, Stoke-on-Trent, and in 56 other smaller towns. The 27 uncertified causes of death last week included 3 in Birmingham, 3 in Liverpool, and 2 each in St. Helens, Bury, Manchester, Preston, and Sunderland.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, with an aggregate population estimated at 2,182,400 persons in the middle of this year, 1163 births and 586 deaths were registered during the week ending June 29th. The annual rate of mortality in these towns, which had decreased from 15·5 to 14·5 per 1000 in the three preceding weeks, further declined to 14·0 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these Scotch towns averaged 15·5 per 1000, against 13·1 per 1000 in the 95 large English towns during the same period. Among the several towns the annual death-rates last week ranged from 3·9 in Clydebank, 6·3 in Motherwell, and 9·8 in Paisley, to 18·0 in Kilmarnock, 22·5 in Hamilton, and 23·4 in Dundee.

The 586 deaths from all causes were 19 fewer than the

number in the previous week, and included 57 which were referred to the principal epidemic diseases, against 59 and 74 in the two preceding weeks. Of these 57 deaths, 32 resulted from measles, 9 from infantile diarrhœal diseases, 8 from whooping-cough, 5 from diphtheria, 2 from scarlet fever, and 1 from enteric fever, but not one from small-pox. These 57 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·4 per 1000, against 1·1 per 1000 in the 95 large English towns. The deaths attributed to measles, which had been 33, 27, and 30 in the three preceding weeks, were 32 last week, and included 17 in Dundee, 5 in Partick, 3 in Coatbridge, and 3 in Hamilton. The deaths of infants under two years of age referred to diarrhœa and enteritis, which had been 13 in each of the two preceding weeks, declined to 9 last week, of which number 3 were recorded in Glasgow. The fatal cases of whooping-cough, which had risen from 9 to 21 in the three preceding weeks, fell to 8 last week, and included 3 in Aberdeen. The deaths attributed to diphtheria, which had declined from 10 to 3 in the four preceding weeks, were 5 last week, and comprised 3 in Glasgow and 2 in Dundee. The 2 deaths referred to scarlet fever and the fatal case of enteric fever were all registered in Glasgow.

The deaths referred to diseases of the respiratory system in the 18 Scotch towns, which had decreased from 107 to 73 in the three preceding weeks, further declined to 69 last week, and 18 deaths were attributed to different forms of violence against 19 and 22 in the two previous weeks.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons in the middle of this year, 594 births and 354 deaths were registered during the week ending June 29th. The annual rate of mortality in these towns, which had declined from 18·8 to 15·7 per 1000 in the three preceding weeks, rose to 16·0 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual rate of mortality in these Irish towns averaged 19·0 per 1000; in the 95 large English towns the corresponding death-rate did not exceed 13·1 per 1000, while in the 18 Scotch towns it was equal to 15·5 per 1000. The annual death-rates in the several Irish towns last week were equal to 15·9 in Dublin (against 10·8 in London), 12·8 in Belfast, 27·2 in Cork, 25·5 in Londonderry, 20·4 in Limerick, and 13·3 in Waterford; while in the remaining 16 towns the mean death-rate did not exceed 15·4 per 1000.

The 354 deaths from all causes in the 22 Irish towns were 6 in excess of the number in the previous week, and included 29 which were referred to the principal epidemic diseases, against 37 and 34 in the two preceding weeks; of these 29 deaths, 10 resulted from whooping-cough, 10 from diarrhœal diseases, 5 from measles, 2 from scarlet fever, 1 from diphtheria, and 1 from typhus fever, but not one from small-pox or from enteric fever. These 29 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·3 per 1000; the death-rate from these diseases last week did not exceed 1·1 per 1000 in the 95 large English towns, and was equal to 1·4 in the 18 Scotch towns. The deaths attributed to whooping-cough, which had been 9, 5, and 7 in the three preceding weeks, further rose to 10 last week, and comprised 4 in Limerick, 3 in Belfast, and 3 in Newry. The deaths referred to diarrhœal diseases, which had increased from 3 to 10 in the three preceding weeks, were again 10 last week, of which number 7 related to infants under 2 years of age; 7 deaths occurred in Dublin, 2 in Galway, and 1 in Belfast. The fatal cases of measles, which had been 15, 17, and 11 in the three preceding weeks, fell to 5 last week, and comprised 4 in Dublin and 1 in Belfast. The 2 deaths attributed to scarlet fever last week were equal to the average in the six preceding weeks, and were registered in Dublin and Galway respectively. The fatal case of diphtheria was recorded in Dublin and that of typhus fever in Waterford.

The deaths referred to diseases of the respiratory system in the 22 Irish towns, which had decreased from 84 to 70 in the three preceding weeks, further declined to 63 in the week under notice. Of the 354 deaths from all causes, 106, or 30 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 21, or 7·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 95 large English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeon: A. X. Lavertine to the *Royal Arthur*. Surgeon: J. H. Wright to the *Royal Arthur*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel A. P. Blenkinsop has been appointed an Assistant Director of Medical Services in India under the India Office (Medical Branch) (dated May 9th), 1912, vice Brevet-Colonel R. S. F. Henderson, K.H.P.

Surgeon-General L. E. Anderson, principal medical officer of the Bareilly, Gharwal, and Dehra Dun Brigades, has arrived home on leave of absence from India.

Colonel H. O. Trevor has been appointed Assistant Director of Medical Services in the Belfast District.

Lieutenant-Colonel C. Birt has taken up duty at the War Office as Expert in Tropical Diseases, Army Medical Advisory Board, in succession to Surgeon-General Sir David Bruce, K.C.B. Lieutenant-Colonel F. W. Caton Jones has been transferred from the Fourth (Quetta) Division to the Seventh (Meerut) Division, and appointed to command the Military Hospital at Meerut Cantonment. Lieutenant-Colonel J. Thomson, senior medical officer at Harrismith, has arrived home on leave of absence from South Africa. Lieutenant-Colonel G. F. Gubbin has been selected for appointment as Deputy Assistant Director of Medical Services in the First (London) Division. Lieutenant-Colonel C. H. Hale, D.S.O., has been transferred from the Fifth (Mhow) Division to the Burma Division, and appointed to command the Military Hospital at Maymyo, in succession to Lieutenant-Colonel J. W. Bullen.

Major W. R. Blackwell, staff surgeon at Lucknow, has arrived home on leave of absence from India. Major H. G. Martin has been appointed for duty to the Irish Command. Major C. B. Lawson has been transferred from the Southern Command to the Eastern Command. Major G. G. Delap, D.S.O., assistant instructor at the Royal Army Medical Corps Depôt, Aldershot, has been selected for appointment as Deputy Assistant Director of Medical Services in South Africa. Major S. S. St. D. Green, at present in charge of the Louise Margaret Families Hospital at Aldershot, has been placed under orders for service abroad during the coming trooping season. Major F. A. Symonds has been transferred from the Military Hospital at Cosham to Gosport. Major J. P. J. Murphy has embarked for a tour of service at Cape-Town. Major F. G. Richards, on the completion of leave of absence from duty, has been appointed to Queenstown. Major J. E. Carter has taken up duty as Company Officer to the 10th Company Royal Army Medical Corps at Chatham. Major G. S. Mansfield, in charge of the Military Hospital at Norwich, has been granted one month's leave of absence. Major E. W. Siberry has joined the Military Hospital at Pretoria for duty. Major E. M. Williams has been appointed in charge of the Garrison Dispensary at Fort William, Calcutta.

Captain G. H. Rees has arrived home for duty from Egypt. Captain J. S. Dunne, on completion of a tour of service in India, has been appointed to the Eastern Command. Captain T. F. Ritchie has embarked for a tour of duty on the West Coast of Africa (Sierra Leone). Captain T. S. Eves has been transferred from the Military Hospital at Lucknow to Benares. Captain A. W. Sampey on arrival in India has been appointed to the Station Hospital at Naini Tal. Captain G. W. G. Hughes has been transferred from Scarborough to Bradford. Captain J. W. Dunn has been selected for appointment as Specialist in Radiography and Electrical Science to the Fifth (Mhow) Division. Captain R. A. Bryden, on return from South Africa, has been appointed to the Military Hospital at Hounslow. Captain E. G. Anthonisz has joined for duty in Ireland. Captain H. T. Stack has been transferred from the Military Hospital at Bareilly to Ranikhet. Captain G. G. Tabuteau and Captain R. E. Humfrey, on arrival home from India, tour expired, have been posted to Ireland for duty at Dublin and the Curragh respectively. Captains J. M. B. Rahilly

R. E. Humfrey, W. G. Maydon, G. Ormrod, and H. A. Sherren have been selected to attend the next promotion course at the Royal Army Medical College, Grosvenor-road. Captain W. H. S. Burney, at present attached to the Military Hospital, the Curragh, has been placed under orders for service abroad during the coming trooping season.

Lieutenant G. P. Taylor has embarked for South Africa for duty at the Military Hospital, Pretoria. Lieutenant A. G. Jones has been transferred from Oxford to the Military Hospital at Tidworth, Salisbury Plain. Lieutenant W. S. R. Stephen has joined at Hounslow on transfer from the Royal Herbert Hospital, Woolwich. The following Lieutenants, at present serving at home stations, have been notified by the War Office to hold themselves in readiness for foreign service next trooping season: E. T. Gaunt, C. H. H. Harold, E. L. Fyffe, R. F. Bridges, T. J. Hallinan, H. G. Monteith, J. D. Bowie, C. H. Stringer, and G. O. Chambers. Lieutenant R. C. G. M. Kinkead has been appointed to the Military Hospital at Bloemfontein, on transfer from the Cork District. Lieutenant R. M. Davies has taken up duty at the Military Hospital, Pretoria. Lieutenant C. M. Nichol, at present holding charge of the Military Hospital at Weedon, has been granted one month's leave of absence.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel J. T. Calvert has taken up duty as Principal and Professor of Medicine at the Medical College, Calcutta, in succession to Lieutenant-Colonel F. J. Drury, appointed Inspector-General of Civil Hospitals in the Province of Bihar and Orissa. Lieutenant-Colonel R. J. Marks, civil surgeon at Gorakhpur, has been granted six months' leave of absence home from India. Lieutenant-Colonel F. O'Kinealy, lately surgeon to H.E. the Viceroy and Governor-General in India, has been appointed to officiate as Surgeon Superintendent of the Presidency General Hospital at Calcutta. Lieutenant-Colonel A. W. T. Buist, Bengal Presidency, civil surgeon at Ambala, has arrived home on 19 months' leave of absence from India.

Major W. MacM. Pearson, civil surgeon at Budaun, has been transferred to Mirzapur and appointed Civil Surgeon in succession to Major W. S. Willmore, granted leave of absence. Major J. W. Grant, second class agency surgeon, Bengal Presidency, has been selected for appointment as Residency Surgeon, Western States of Rajputana. Major E. A. R. Newman, superintendent of the Campbell Medical School and Hospital at Sealdah, has been appointed Medical Inspector of Emigrants, in succession to Major R. H. Maddox, whose services have been placed at the disposal of the Government of Bihar and Orissa. Major C. C. S. Berry has arrived home on leave of absence from India. Major S. C. Evans has received an extension of furlough.

The services of Captain G. F. I. Harkness have been placed temporarily at the disposal of the Government of Bombay. Captain F. A. F. Barnardo has been appointed to officiate as Civil Surgeon at Darjeeling, in succession to Lieutenant-Colonel B. H. Deare. H.E. the Governor of Bombay in Council has been pleased to appoint Captain J. L. Lunham to officiate as Civil Surgeon at Belgaum. The services of Captain H. Watts, plague medical officer in the Punjab, have been placed at the disposal of the Home Department of the Government of India. Captain E. T. Harris has been appointed for general duty at the Rangoon General Hospital. Captain R. Knowles, senior medical officer at Jhansi, has taken over medical charge of the district in succession to Major C. Milne, transferred. Captain C. H. Brodribb has arrived home on leave of absence from India. The services of Captain S. W. Jones have been placed at the disposal of the Government of Bombay for employment in the Jail Department.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant Henry H. Brown is confirmed in his rank.

The under-mentioned to be Lieutenants (on probation) (dated June 4th, 1912): Cadet Thomas Sidney Nelson, from the Oxford University Contingent, Officers Training Corps; and Cadet George Reginald Grant, from the Edinburgh University Contingent, Officers Training Corps.

TERRITORIAL FORCE.

Royal Army Medical Corps.

For Attachment to Units other than Medical Units.—George Burton Robinson (late Surgeon-Captain, 5th Battalion, The King's (Liverpool Regiment)), to be Captain (dated May 23rd, 1912).

Attached to Units other than Medical Units.—Captain Arthur Price to be Major (dated April 23rd, 1912). Lieutenant Frederick W. B. Young to be Captain (dated May 7th, 1912).

"THE MILITARY SURGEON" (WASHINGTON).

The May number of this periodical opens with the address of Medical Director (Surgeon-General) H. G. Beyer, U.S.N., President of the Naval Medical School, to the young surgeons when passing out. The speaker, to whose account of the Dresden International Exhibition we referred on March 23rd, directed the class to remember that much work lay before them and some inevitable unpopularity in their fight against evils, which, however, they would face, remembering what is asserted in the commissions of medical officers of the United States navy, that the country has special trust and confidence in their fidelity. An article on salvarsan recommends the intramuscular injection of an oily solution, the dose suspended in 3 c.c. of a 10 per cent. solution of lanoline in olive oil. Medical Inspector (Deputy Surgeon-General) Charles Lowndes, U.S.N., discusses the recruits he saw at Baltimore. Of 683, 9 only were rejected for venereal disease, and he does not mention tuberculosis once. A 25 per cent. ointment of calomel was used on board the U.S.S. *Rainbow* in China as a prophylactic against gonorrhœa. Among 529 exposures only 4 cases developed, and 3 of these had evaded treatment, so the percentage of failure was only 0·2 per cent. Major Edward L. Munson, U.S. Medical Corps, commences a valuable article on the wastage of the Northern army in the Civil War consequent on the neglect of medical officers and others to see that sick men returned to the fighting line directly they recovered. In the June issue Major Munson continues his article. He carefully discusses malingering, and impresses most earnestly on the surgeon who first sees the case that it is for him to see that no malingerer goes past him. A medical officer who examines the man later has to fight against, not only the man's now more skilful tale, but the written opinion of the medical officer who first saw him that he was then suffering from some named disease. This paper should be read by every naval and military medical officer, as it goes to the root of the medical efficiency of armies. Captain Louis C. Duncan recounts the disorganisation of the medical service of the Northern Army at the battle of Bull's Run, when there were only small regimental hospitals and a single ambulance to each regiment, and no brigade or divisional organisation or equipment whatever. He says that that state of matters was amended shortly after, but by-and-by was re-established and only three ambulances were taken to Santiago in 1898. At Bull's Run the principal medical officer directed nothing, but treated wounded individuals. As there was no organised ambulance service a wounded man was accompanied to the doctor by perhaps half-a-dozen sympathetic comrades who took good care not to return to the firing line. The Tropical Diseases Board of the Philippine Islands report that the neuritis-preventing substance in unpolished rice is absorbed by animal charcoal, and that white beans (calavances) may take the place of katjang-idjoe beans in protecting fowls from polyneuritis. They find that ultra-violet rays destroy the amœbæ in water, amœbæ which can pass through sand filters. The process is cheap, efficient, and does not make the water hot or spoil its taste. Accordingly the process is suggested for use on active service. Passed Assistant Surgeon W. S. Pugh, U.S.N., classifies the skin complications of gonorrhœa under three heads: those that resemble (*a*) scarlet fever or measles, (*b*) erythema multiforme, and (*c*) purpura. They are ascribed to a bacteræmia. Major T. C. Field notes that in cases of leprosy the most advanced lesion is almost always an ulceration in the nose, and suggests that the primary lesion may be at the anterior end of the inferior turbinate bone, and that the disease is spread by nasal mucus in sneezing. Nearly everyone in the American army has a positive Widal reaction in these days of universal inoculation against typhoid, so Captain Clarence L. Cole suggests that leucopenia, less than 5000, with marked decrease of polynuclears, may be used instead as a diagnostic of the onset of typhoid. The St. John Ambulance Brigade's Durbar contingent has six pages of

appreciation, and the number closes with an account of the Ninth International Red Cross Conference at Washington in May, which is reported a great success. In the account of the exhibits may be recognised the influence of the Dresden Exhibition of last year, where everything was done on a large scale.

Correspondence.

"Audi alteram partem."

FLEMING'S (HECHT'S) MODIFICATION AND THE WASSERMANN TEST.

To the Editor of THE LANCET.

SIR,—The Fleming modification of the Wassermann test has been the butt of much unofficial disparagement, and the article of Mr. R. Donald in THE LANCET of June 29th is to be welcomed as a more serious investigation into the utility of the method. I shall be glad if you will permit me in your columns to offer some criticisms upon Mr. Donald's methods. In the first place, Mr. Donald appears to me to contrast not the results of the Fleming with the Wassermann test, but the utility of various antigens. Guinea-pig heart muscle was used throughout in the Fleming test, and either human heart muscle or Sachs's antigen in the Wassermann technique. Mr. Donald found, as was to be expected, slightly more positive sera by Fleming's method, using guinea-pig antigen, than by the Wassermann method when human heart muscle was used as antigen, and fewer positive sera when Sachs's antigen was used. No reasonable comparison between the methods is possible on these data, since more positive sera are recorded by the use of Sachs's antigen in performing the Wassermann test with the original technique than with the older antigens. Mr. Donald found 27 per cent. of sera in one series failed to hæmolyse the controls, and an even higher percentage than this has been recorded by other workers. I believe the fault lies here with the technique and not the hæmolytic system. If Mr. Donald will collect his sheep's blood into "the disturbing sodium citrate" and give it at least four to five washings with 0·9 per cent. saline, he will find that a fresh sample of human serum almost invariably hæmolyses the cells. The exceptions are, I think, not more than 5 per cent., and probably less. If a comparatively small trace of sheep serum is incubated with a hæmolytic human serum and then added to sheep cells no hæmolysis occurs, and it is this failure to thoroughly wash the sheep cells free of serum which has accounted for many "inactive" sera within my knowledge. Should a serum fail to hæmolyse, it is not necessary to experiment as to whether complement or amboceptor is lacking; all that is necessary is to heat the serum and then reactivate it with a known normal human serum (or with guinea-pig serum), since the consequent excess of amboceptor does not affect the reaction.

Mr. Donald found that he could not use sera more than a few days old by the Fleming modification, and here I am in entire agreement with him. The sera should be withdrawn on the morning the test is performed, or at the very longest 12 hours previously and stored on ice. The essentials of the Fleming modification are a very thorough washing of the sheep cells and the use of freshly drawn sera. Mr. Donald hints at a further essential—namely, an experience of serological methods, and this I believe to be of more value than any difference in technique. The introduction of the Wassermann test led to an outburst of literature much of which has been provided by workers previously unused to delicate laboratory investigations, and consequently very prone to be led astray by personal bias.

I am, Sir, yours faithfully,

July 1st, 1912. P. N. PANTON.

JAMES HUTCHISON STIRLING.

To the Editor of THE LANCET.

SIR,—My attention has been called to a letter in your present issue in which the writer (Dr. F. Lucas Benham) maintains that philosophy was not, as it had been represented as being, a *parergon* in the case of my father. May I be permitted to say that Dr. Benham is quite correct? During the eight years when he practised as a surgeon (in South Wales) my father gave himself whole-heartedly to his profession, was awarded a vote of thanks by the Board of Health for his success in dealing with a severe epidemic of cholera, and afterwards published a pamphlet entitled "The Commonsense of Cholera." But the work which he accomplished in metaphysics required the most undivided attention, the closest concentration; and these he gave to it for by far the greatest part of his life.—I am, Sir, yours faithfully,

AMELIA HUTCHISON STIRLING.

Edinburgh, June 29th 1912.

BARIUM SULPHATE IN X RAY DIAGNOSIS.

To the Editor of THE LANCET.

SIR,—I read your annotation of June 22nd on the proposed substitution of insoluble barium salts for the bismuth salts that have been in common use for some years in X ray examinations of the alimentary tract, and I note the further annotation in your issue of this week drawing attention to a case that proved fatal from some error in regard to the barium salt supplied. Bismuth, with its much higher atomic weight, must on physical grounds be considered the more satisfactory substance to employ, and no appreciable risk attaches to its use. It is, of course, obvious that if a perfectly pure sulphate of barium were used no untoward results need be anticipated, but your account shows how easily circumstances may arise fraught with deadly danger to the patient. Why do investigators turn, even experimentally, to the use of substances that may easily become a source of danger, seeing that safer and more effective ones are already employed? If there is an adequate reason for recommending the use of the barium salt instead of the commonly used bismuth salts it would be interesting and important if any of your readers could give it.

I am, Sir, yours faithfully,

WILLIAM MARTIN, M.D. Durh.

Newcastle-upon-Tyne, June 29th, 1912.

*** The fact that carbonate of barium was supplied by mistake for the pure sulphate does not detrac from the use of the latter for the purpose. Cases of bismuth poisoning have been reported as a result of giving the bismuth meal.—ED. L.

A NATIVE OPERATION.

To the Editor of THE LANCET.

SIR,—The following short account of the excision of cervical glands by an "Owe" "ju ju" man of Kabba Province, Northern Nigeria, may interest readers of THE LANCET.

Recently I visited a case of blackwater fever at Kabba, a distance of over 50 miles from here. During my short stay there I observed that most of the natives had very fine scars over the region of the cervical glands, and on making inquiries from the Resident, Mr. Ley Greaves, I was told that over 60 per cent. of the pagans in his district had these scars, which were the result of an operation performed by the "ju ju" man or surgeon of the district. The operation was supposed to cure, or confer immunity against, sleeping sickness.

Seeing that I was interested in the matter Mr. Ley Greaves kindly got the local "ju ju" man to perform the operation before me. His choice of subjects fell on two small boys, one with distinct enlargement of the anterior cervical glands on both sides; the other boy had one gland of the posterior cervical group enlarged. The instruments used were two small hooks and one knife with a rounded edge and very sharp; each instrument was two inches long. The gland was picked up under the skin with the thumb and forefinger of the left hand and a small incision made over the gland. One hook was used to pull the wound open, and with the other hook the operator hooked the gland out of the wound, and with a few strokes of the knife liberated the gland from its adhesions. Some native medicine was now pressed into the wound with the thumb. There was free bleeding, and this probably accounts for the fact that all the wounds heal by first intention. Nothing was done in the way of preparing the skin or instruments, and the whole operation did not last two minutes.

I am Sir, yours faithfully,

W. MORRISON, M.B. Edin.

Lokaja, Northern Nigeria, April 4th, 1912.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—Surely one of the greatest anomalies of the age is a House of Commons which decides that the fixing of a minimum scale of pay for the colliers ought not to be settled by the House, but that a maximum scale must be fixed for the remuneration of the doctors under the National Insurance Act. It is, of course, open to the Chancellor to reply that this is not so, but when he states that the maximum amount that he has for this purpose is 6*s.* per head of the insured population he surely is establishing a maximum rate. Again, it may be urged that it is a matter of individual option on the part of the members of the profession to put their names on the panel and agree to accept his terms, but it is hardly fair fighting on the part of the Chancellor and his supporters to endeavour to coerce by threats or to cajole by promises, and so try to divide the ranks of a hard-working profession on a question of such serious importance to themselves and their patients.

Now what is the service expected for this six shillings? Medical attendance and treatment for all insured persons, whether members of a recognised society or not, including those who are broken down or breaking down in health, including the Post Office contributors, who are many of them unable by reason of their health to join any recognised society, the medical benefit to continue at the same rate of pay during the advancing years of life, when the incidence of sickness is greater, and to the end of their days in the case of those who have been insured. This is State aid of a kind never before attempted. Is it fair that such an important part of this experiment in public health should be initiated by the exploiting of the services of a profession, which is said to be the very backbone of the whole scheme, and without which services it has been stated that the whole Act can never be carried through to a successful issue?

Passion and reason are totally alien; we want more logic and less invective than we have hitherto had in most of the discussions, but chief of all everything should be above board; if all that one hears is true there are under-currents at work which will never redound to the credit of their originators; an attempt, it is said, to nobble the public health service has rightly failed ignominiously, and this at a time when negotiations are supposed to be in progress. For the sake of comparison it will be well to put side by side the terms offered by the Insurance Act and the scale of pay of one of the public services—viz., the G.P.O.:—

National Insurance.	*G.P.O.*
1. Six shillings a year for all persons working for less than £160 a year.	1. Eight shillings and sixpence for all persons working for less than £160 a year.
2. All workers insured whatever their state of health, including the P.O. contributor.	2. All selected lives, after medical examination, for which a fee is paid.
3. Chronic invalidity still entails medical attendance at the same rate of pay to the end of life.	3. Chronic invalidity after a period ends in superannuation with stoppage of all medical benefits. The place of the superannuated individual being taken by a new selected healthy life.
4. Medical attendance continues to old age in the case of those who have been insured workers.	4. Compulsory retirement on pension takes place at age of 60 years with stoppage of all medical benefits.

For the year 1911 the cost of medical benefits in the case of the Post Office employees works out in the case of men to 1*s.* 4¼*d.* for each day's absence from work, and in the case of women to rather over 9½*d.* This does not include a large amount of service rendered to those who are not off work, but who are in need of and receiving medical advice and treatment.

As a temporary alternative surely it will be sufficient that each claimant for sick pay shall in every week of invalidity produce a medical certificate as to the nature and probable duration of his illness from a duly qualified medical man in attendance, no payment to be made until such certificate is produced on a duly authorised form, the patient, as now, to make his own arrangements with the doctor of his choice.

I am, Sir, yours faithfully,

Rochdale, June 28th, 1912. WILLIAM STANWELL.

*** It is significant of the little progress made in our negotiations with the Government that this letter might well have been written a year ago.—ED. L.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Professor Sellers's Inaugural Address on Medical Jurisprudence.

Professor William Sellers, who succeeds the late Professor Dixon Mann in the chair of Medical Jurisprudence, gave his inaugural address in the Medical School on June 27th. After making reference to the great distinction of his predecessor as an author, physician, and toxicologist, Professor Sellers, who is a Doctor of Medicine, a barrister, and a coroner, pointed out to the students that when they became graduates they would be brought into contact with legal tribunals. The chances of a medical practitioner being called as a witness in court had enormously multiplied during the last 20 years owing to the great changes which had been brought about in the law, especially in regard to the relations between employers and employed. In connexion with post-mortem examinations, he counselled his hearers, when they were in doubt as to the cause of death in a particular case, not to be afraid to say they did not know. In conclusion, Professor Sellers added: "I believe that this is the first time a chair in forensic medicine has been held by a practising barrister. For the sake of the University, of yourselves, and of myself, I trust that the experiment may be justified by the results."

St. Mary's Hospitals.

The yearly report was submitted to the subscribers at a meeting in the town hall held on June 26th. Very largely owing to the exertions of women friends of the hospitals encouraging reports of their improved financial condition were given. The number of patients treated during the year was 19,305, as against 18,508 in the previous year. Twenty-one medical students resided in the hospital and 70 midwifery nurses were trained. In the new hospital, which was occupied in April of last year, there were beds for 25 children and accommodation for 85 gynæcological patients. In the Whitworth-street West Hospital there are now 50 beds used for maternity patients. Accommodation for 11 medical students and 28 midwifery nurse pupils has also been arranged. A special appeal was made some time ago on behalf of the hospitals. The donations received were £25,815; and the new annual subscriptions £1302. The ladies' committee in this regard rendered most valuable service. The total amount raised recently by their appeals to the public brought in £40,753. More than 200,000 pennies were collected by the Women's Guild. Speaking in support of the hospitals of the city, Bishop Weldon, Dean of Manchester, said that "the hospitals deserved even more support from the community than they obtained. It was fair to remember that the laity were very hardly hit in the present time, and it was not so easy to make large contributions to works of charity, but what did surprise him was that more money was not left to hospitals in legacies. No one wished hospitals to go on the rates, but unless they were generously supported by private individuals they would."

Tuberculous Disease in Manchester Meat Market.

From the annual report of Mr. Ware, the superintendent of the markets department, we learn that of 8688 carcasses and portions of carcasses and consignments of fish condemned during the year, no fewer than 4191 were discovered to be tuberculous. The superintendent in his report remarks that diseased meat as a cause of tuberculosis "will in all probability continue unless the disease is scheduled under the Diseases of Animals Acts, and dealt with by a special order of the Board of Agriculture and Fisheries." If this were done tuberculosis would rapidly diminish and finally disappear from our cattle, and with it the important foci for the distribution of the tubercle germ—viz., tuberculous milk. Another suggestion is made that in connexion with the feeding of pigs it is of importance that all dairy "waste," before being used as food for pigs, should be thoroughly boiled.

Heavy Mortality of Children in Salford.

The effects of the prolonged heat and drought of last summer, according to the annual report of the medical officer of

health of Salford, Mr. C. H. Tattersall, reflected themselves in the high infantile mortality. Of children under 12 months, 980 infants died, giving a death-rate of 154 per 1000 births, as compared with 131 of the previous year. The average of the preceding five years was 145. Diarrhœa, as usual, was the cause of the majority of the deaths. The births numbered 6345, equal to 27·4 per 1000 of the population, a reduction of 249 on the previous year. The total registered deaths numbered 4036, giving a death-rate of 17·4 per 1000 of the population.

July 1st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

New Professor of Pathology in the University of Liverpool.

THE council of the University, at its meeting on June 25th appointed Dr. Ernest E. Glynn to the George Holt professorship of pathology, rendered vacant by the demise of Sir Rubert Boyce, who had filled the post since its foundation. Professor Glynn has held the post of lecturer in clinical pathology and assistant to the late professor for some years, and has proved an excellent teacher. He is a Master of Arts and a Doctor of Medicine of the University of Cambridge, and a Member of the Royal College of Physicians of London. Professor Glynn was formerly assistant physician at the Liverpool Royal Infirmary. He is an old student of the University of Liverpool, and son of Professor T. R. Glynn, the holder of the chair of medicine at the University.

The Appointment of City Bacteriologist.

The finance, health, port sanitary and hospitals, and water committees have all resolved to recommend to the city council the appointment of Dr. James Martin Beattie, professor of pathology and bacteriology, and dean of the medical faculty of the University of Sheffield, as city bacteriologist, in succession to the late Professor Sir Rubert Boyce. Professor Beattie is the joint author of "Text-book of General Pathology" and "Text-book of Special Pathology," and was recently examiner in pathology at the Universities of Edinburgh and Liverpool.

Memorial to the late Sir Rubert Boyce at the University of Liverpool.

The friends of the late professor of pathology have offered to bear the expense of a memorial tablet in memory of Sir Rubert Boyce in the University buildings. The site has not yet been determined, but the natural position would seem to be in the Thompson-Yates laboratory, where Sir Rubert Boyce performed much valuable work.

The Joint Matriculation Board.

The court of the University of Liverpool has now confirmed the statute submitted to it by the Privy Council for the continuation of the work of the board which controls the preliminary examinations of the Universities of Manchester, Liverpool, Leeds, and Sheffield. All the universities have now concurred, and the new statute comes into force at once. By the terms of the new statute more freedom is given to the individual universities to apply additional lists of admission to the various faculties and schools if they consider it desirable.

Annual Inspection of the City Infectious Hospitals: Vaccination Exemptions.

During the annual tour of inspection of the city hospitals on June 25th increased provision for tuberculous patients as contemplated by the National Insurance Act was foreshadowed. While it was shown that the hospital and other sanitary work tended to the eradication of disease, the leaving of thousands of children unvaccinated threatened, it was stated, a renewal of the ravages of small-pox.

The King and Queen and the Wigan Infirmary.

The Mayor of Wigan announced that he had written to the Earl of Derby to invite their Majesties the King and Queen to visit Wigan on the occasion of Their Majesties' Lancashire tour, and to lay the foundation-stone of the new out-patient department of the Royal Edward Infirmary. The cost of the proposed addition to the hospital is estimated at £10,000.

July 2nd.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The King and Queen at the Bristol Royal Infirmary.

WHEN it became known that Their Majesties had graciously accepted the invitation from the committee of the Bristol Royal Infirmary to open their new King Edward VII. Memorial buildings, it was felt in the city generally that something must be done to give the visit a more widely civic purpose. Accordingly, when the King and Queen spent two hours and a half in Bristol on June 28th, breaking their homeward journey from South Wales, they found a programme which taxed their time to the utmost. Arriving at Temple Meads station in the afternoon they received an address from the Society of Merchant Venturers at the hand of the Master of the society, and another from the University of Bristol, which was presented by Sir Isambard Owen, Vice-Chancellor, Mr. George Wills, Pro-Chancellor, and Professor Lloyd Morgan. His Majesty replied to these, saying in his response to the latter that "ripe wisdom may be found where the pursuit of knowledge and the practice of affairs exist side by side," and speaking in his first reply of his personal sympathy with the work of "those who go down to the sea in ships." The procession drove from the station to the council house, where an address was presented by the corporation, and the popular Lord Mayor, Mr. Frank Wills, was knighted by the King. The next destination was one of the Clifton College playing fields, where a "living Union Jack," consisting of 2500 children, had been arranged by the Victoria League. After Their Majesties had watched this with evident pleasure, the King inspected a body of veterans, and passed on to the college quadrangle. Here the head boy presented an address, and to this His Majesty replied. The procession then returned through Clifton to the Royal Infirmary, where about 3000 guests were assembled to witness the opening ceremony, in a large stand which commanded a good view of the proceedings. Unfortunately the rain, which had been threatening all day, came down heavily, and interfered with the programme to some extent. Their Majesties were received at the main entrance by the Duke and Duchess of Beaufort, who presented Sir George White, the president of the infirmary, Lady White, and other officials. Thence they proceeded to a ward in the new building which had been decorated as a reception-room, and in front of which stood the Royal dais. Here, when they passed out to the dais, Lady White presented a fan to the Queen; and various officers of the institution, including Dr. A. B. Prowse (the senior physician), Mr. J. Paul Bush, C.M.G. (the senior surgeon), and Miss Baillie (the matron), were presented to Their Majesties. Then the secretary read a long address from the governors, in which allusion was made to the career of the infirmary since its foundation in 1735, the cost of the rebuilding scheme, of which the wing about to be opened is a first instalment, and the arrangements which have been made to use the institution as a base hospital in "certain eventualities." The patronage of Their Majesties was also gratefully acknowledged. His Majesty replied in sympathetic terms, speaking of King Edward's warm interest in hospital work, and after a prayer by the Bishop of Bristol declared the new wing open. The King and Queen then inspected the building, naming two wards the "King George Ward" and the "Queen Mary Ward," to which the Queen added a request that the children's ward might be called the "Princess Mary Ward." Thence they proceeded to the nurses' garden, but as it was raining fast the Queen was unable to plant a tree as had been arranged, and the Royal party returned to the buildings and thence to the station. Throughout their journey round the city the streets were packed with onlookers, and in spite of the rain the welcome accorded to them was most enthusiastic.

School Medical Inspection in Cornwall: the Cornish Pasty.

Dr. R. Burnet, in his annual report for 1911 of the medical inspection of school children in Cornwall, states that the number of scholars on the roll for the year was 48,174. During 1911, 11,604 children were examined, and of these 516, or 4·4 per cent., were found to be defective as regarded external disease of the eye, and 1060, or 9·1 per cent., suffered from bad eyesight. Practically every eleventh child

was deficient in eyesight—a condition of affairs which, Dr. Burnet says, certainly ought not to exist. He adds that the two medical inspectors could not possibly do the work of special vision testing in addition to their ordinary duties, and as it is important that this should be performed he urges the appointment of a third medical inspector. Dr. Burnet's report alludes to the Cornish pasty. He states that the pasty, which so often constitutes the principal meal of the scholar, is generally only made of indigestible pastry, packed with vegetables, principally potatoes, and often badly cooked. These potatoes supply an excessive quantity of starchy material, detrimental to the teeth. The pasty must lie heavily on the stomach, as it is eaten cold and is consequently hard. Dr. Burnet says that 61 per cent. of the children had carious teeth, which he thinks is possibly contributed to by this article of food. He adds that the real Cornish pasty partaken hot, with its necessary amount of cooked meat and digestible pastry, would, if substituted for the spurious one so much in evidence, produce a far better result.

A New Cottage Hospital for Axminster (Devon).

The new cottage hospital at Axminster was formally opened on June 18th by Mrs. Conybeare Craven, in the presence of a large gathering. The building contains two wards (for male and female respectively), accident ward, private ward, operating theatre, board room, rooms for matron, &c. The cost of the institution has exceeded £2000, but with the exception of £150 the whole of that sum has been raised.

Nurses and the Workmen's Compensation Act.

At the last meeting of the Okehampton (Devon) board of guardians a letter was read from a solicitor asking for compensation, under the Workmen's Compensation Act, for a nurse who had contracted enteric fever whilst in the employ of the guardians. After some discussion the clerk stated that he did not believe the nurse came under the Act, and he advised the board not to admit liability. Eventually it was decided to follow this advice.

The Conversion of a Workhouse.

The Torrington (Devon) board of guardians are proposing to convert their workhouse into an institution for the reception of the feeble-minded patients who are chargeable to the Poor-law unions of North Devon. A Local Government Board inquiry was held at Torrington on June 19th with the object of obtaining the sanction of the Local Government Board to the scheme.

July 2nd.

SCOTLAND

(FROM OUR OWN CORRESPONDENTS.)

The Insurance Act and Insurance of Nurses.

WITH regard to the insuring of hospital nurses and general staff in hospitals, the hospital officials in Aberdeen feel that in view of the Act coming into force on July 15th there should be no delay in reaching a clear understanding. Practically all the nurses and general staff of the hospital in Aberdeen will have to insure under the Act, and it is possible that their insurance may to some extent affect the position and privileges they have hitherto held in the hospital. There are 70 to 80 nurses in the Royal Infirmary, and when any are sick they receive medical attention in the hospital in the position of private patients. This privilege they enjoy at the discretion of the board, and it is a question whether under the Insurance Act this position will hold good. Other institutions, such as Kingseat Asylum, the Royal Asylum, and Oldmill Poorhouse, are in much the same position, except that the Poorhouse and Kingseat Asylum are supported from the rates, while the Infirmary is a charity. It is possible that the parish council and lunacy board would come under certain exemptions allowed in the Act; but in order to obtain exemption the Insurance Commissioners must be satisfied that provisions are made for employees equal to the benefits offered by the Act. Dr. John R. Currie, medical officer of the counties of Fife and Kinross, has been appointed a medical officer under the Act.

Sick Children's Hospital Fund, Aberdeen.

At the monthly meeting of the directors of the Royal Aberdeen Hospital for Sick Children, held on June 27th, it was intimated that Lord and Lady Cowdray, of Dunecht and Forest of Boise, had given a donation of £5000 to the new hospital building fund on condition that the balance still required was subscribed before the end of next year. The proposed new hospital for sick children is to be erected as a memorial to His late Majesty King Edward. The total amount subscribed up to the present is £12,000; but it is calculated that to supply the growing needs of Aberdeen and district the new hospital would require to contain 100 beds, and a building of this size on a good site is estimated to cost from £30,000 to £50,000.

Aberdeen University: Visit of Oversea Delegates.

Professor Charles Chilton, M.A., D.Sc., M.B., C.M., professor of biology and palæontology of Canterbury College, University of New Zealand, Fellow of the Senate of the University of New Zealand; the Rev. Thomas Wesley Powell, M.A., D.C.L., President and Vice-Chancellor of the University of King's College, Windsor, Nova Scotia, and professor of philosophy and ethics; and the Hon. Devaprasad Sarvadhikary, M.A., B.L. Cal., representative of the University of Calcutta on the Bengal Legislative Council—three of the delegates from over the seas who are at present in this country in connexion with the Universities Congress in London, and who spent last week-end in Aberdeen—had honorary degrees conferred upon them by the University of Aberdeen. On the Rev. T. W. Powell the degree of D.D. was conferred, and on Professor Chilton and the Hon. Devaprasad Sarvadhikary the degree of LL.D.

July 3rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Honorary Fellowships in Dublin.

THE Royal Colleges and the Royal Academy of Medicine have taken advantage of the visit to Dublin of a number of distinguished visitors to add to their lists of Honorary Fellows. The President and Fellows of the Royal College of Physicians of Ireland, at their meeting on June 28th, decided to confer the Honorary Fellowship of the College on Sir Thomas Barlow, Bart., K.C.V.O. (President of the Royal College of Physicians of London), Dr. John Mitchell Bruce, Dr. George Alexander Gibson, Dr. James Mackenzie, Sir David C. McVail, Dr. Norman Moore, Professor Robert Saundby (President of the British Medical Association), and Professor William Sydney Thayer, Baltimore. The Royal College of Surgeons elected Professor I. H. Cameron, Toronto; Sir W. Launcelot Gubbins, K.C.B., Director-General, R.A.M.C.; Mr. Robert Jones, Liverpool; Sir William Macewen, Glasgow; Sir Henry Morris, Bart., London; and Professor Th. Tuffier, Paris. The Royal Academy of Medicine elected Professor David Drummond, Newcastle-on-Tyne; Professor Kund Faber, Copenhagen; Professor Howard Marsh, Cambridge; Professor Johan Nicholaysen, Christiana; Professor V. V. Stroganoff, St. Petersburg; Sir George H. Savage, London; Professor Hans Leo, Bonn; Dr. G. A. Berry, Edinburgh; Professor A. C. F. Eternod, Geneva; Professor G. Sims Woodhead, Cambridge; Professor Anderson Stuart, Sydney; and Dr. Henry Pottinger Keatinge, Cairo.

Limerick and Contract Practice.

The practitioners of Limerick have organised themselves to meet the spread of contract practice in connexion with the Insurance Act. All of them having signed an undertaking to stand together, a circular was sent to the various friendly societies informing them that in future the fees for medical attendance on members of friendly societies would be at the rate of 8*s.* 6*d.* per member without medicine or extras. An income-limit of £2 per week and a medical examination before admission to medical benefit were also mentioned. The friendly societies held a joint meeting to consider the situation, and constituted themselves into a body known as the "Limerick United Friendly Societies." Correspondence has since been passing between them and the medical committee, with the result that the medical officers to the various societies last week handed in their resignations.

Lectures by Asylum Doctors.

At the last meeting of the committee of the Cork Asylum

there was a discussion on the recommendation that the four assistant medical officers be requested to give lectures and tutorship to the male and female staff, to enable the latter to qualify for the medico-psychological certificate, and that each member of the assistant medical staff receive a sum of £12 10*s.* per annum for these services, the number of lectures for such purposes to be not less than 100 per annum. It appears that the examination is now much more severe than formerly, and tuition for it would have entailed heavy work on the asylum medical officers. They had formerly done the work gratuitously, but in future they could not continue to do so. The committee, however, declined to sanction any remuneration.

The Insurance Act.

The profession in Belfast and Ulster are thoroughly united in a policy which they believe will prevent them being exploited by the various approved societies which propose to give medical benefits outside the Act. The feeling is growing that Mr. Lloyd George will not agree to the terms of the medical men in England and Scotland, but that he will pay the money to the insured or to the approved societies, and will leave them to make the best terms they can with the doctors. In Ireland the profession will demand the same terms as their brethren in England and Scotland from clubs and societies.

The Cattle Plague.

Foot and mouth disease has broken out in the north of England, due, it is said, to infection conveyed by Irish cattle from a farm at Swords, county Dublin. As a result, the importation of cattle, sheep, and pigs has been forbidden from Ireland. A great deal yet remains to be done to enlighten the public as to the nature and means of transmission of this malady.

The Milk-supply of Belfast.

At the City Hall, Belfast, on June 25th the Local Government Board inspectors—Mr. F. J. MacCarthy and Dr. Brian O'Brien—opened an inquiry in reference to the application of the corporation for an order authorising it to exercise powers of inspection in relation to dairies situated outside Belfast county borough from which milk is supplied within the county borough. The application is being opposed by almost all the surrounding district councils and by several groups of farmers. The real object aimed at is to be able, in case of outbreaks of illness traceable to dairies outside the city, to inspect these dairies so as to warn the public of any contaminated source; and if the local councils refused to take action, then the Belfast corporation would make representations to the Local Government Board. The chairman of the public health committee, Professor W. St. Clair Symmers, the medical officer of health, the veterinarian, the inspector of dairies, and others have been examined, and the inquiry is still proceeding.

July 2nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Cholera.

Dr. Roux, the director of the Pasteur Institute, on June 24th laid before the Academy of Sciences the researches of Dr. Nicolle for the prevention of cholera. With the assistance of willing collaborators Dr. Nicolle made intravenous injections of living bacilli, and the subjects experienced a certain malaise and fever of short duration. Injections were repeated the second time and were followed by the same symptoms, the blood presenting the agglutination appearances characteristic of active serum treatment.

Honour to Professor Charles Richet.

The pupils and friends of M. Charles Richet, desiring to celebrate his twenty-fifth anniversary at the Faculty of Medicine in the quality of professor of physiology, have decided that the best manner of doing honour to his life work and of testifying their admiration and gratitude for his labours would be to offer him a volume of essays written on the occasion. This interesting work will not be on sale, but will be published by subscription.

Physical Deformities among Children.

To institute a system of prophylaxis against physical deformities among children the town of Bordeaux has organised an orthopædic inspection of the pupils at municipal schools. This inspection has for its object to diagnose the congenital malformations and to trace the appearance of the acquired deformities of the bones and joints, to notify the parents of the circumstances, and to facilitate the treatment among the poor patients. Visits are made during the classes by a specialist and his assistants, and a monthly consultation takes place for each group of schools. The system of inspection, which has now been running regularly for three years, has given some very interesting results. Most of the deformities have been diagnosed in their early stage. Four-fifths of the children for whom it was required have received treatment, and are either cured or in a much better condition. M. Gourdon at the meeting of the Academy of Medicine on June 25th mentioned these results of a scheme which might well be universally adopted.

The Ophthalmic Reaction to Tuberculin.

M. Mongour and M. Fouquet have come to the conclusion that the ophthalmic reaction to tuberculin of itself has no absolute diagnostic value. When it is positive it should be confirmed by clinical signs before the conclusion is come to that tuberculosis is present. Phthisical subjects who are resisting the infection well give a strong reaction, which manifests itself soon and persists sometimes during several days. Among the subjects of pulmonary tuberculosis with fever and tachycardia, and more generally among those who do not resist the infection well, the ophthalmic reaction is feeble, slow to arrive, of short duration, and often negative. The ophthalmic reaction, none the less, is a valuable adjunct to prognosis. The strongest and most lasting reactions are found in cases of acute sero-fibrinous tuberculous pleurisy. M. Mongour and M. Fouquet do not regard the ophthalmic reaction as a condition of anaphylaxis, but rather as a defensive reaction similar to agglutination.

The Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax.

An interesting communication was made recently to the Medical Society of the Hospitals when M. Jules Courmont reported 16 cases of unilateral pulmonary tuberculosis, in the cavitation stage, which had been treated by artificial pneumothorax. M. Courmont reported five successful cases, but M. Léon Bernard and M. Rist considered that the method, though evidently yielding sometimes good results, was only rarely indicated. Pleuritic adhesions were obstacles to it, although surgical interference might here be called for. M. Courmont considered, however, that the method would be dangerous if it became at all general.

July 1st.

NOTES FROM SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

Native Labour Debate in Parliament.

ON May 15th Mr. Andrews, the leader of the South African Labour Party, moved in the House of Assembly, as an amendment to a motion by the Treasurer for leave to introduce an additional Appropriation Bill, that leave be not granted until the Government had given a definite assurance that the further recruiting of native labour from north of latitude 22° should cease. Apparently no rumour of the Labour proposals had reached the House, and a long and somewhat dreary debate ensued. The gist of Mr. Andrews's speech was that the native should be encouraged to work out his own destiny as an agriculturist, and not as a mining labourer, for which he urged he was fitted neither physically nor morally. He argued that the plea for higher skill, better education, and a more complete trade training on the part of the European workman simply meant that the Europeans should fit themselves for the position of supervisors, leaving all the manual work to be done by natives. This ingenious distortion of the real argument he supplemented with an assertion that he had been a labourer for many years, and had never found in it any of that dignity of which so much is said. He denounced the indenture system as compelling the natives to work regularly for regular wages, a kind of employment for which the native was naturally disinclined, finally declaring that he intended to divide the House on the

question, as natives were employed simply because they were cheaper than white labour and would work under conditions which would not be tolerated by Europeans. The Minister of Native Affairs rose at once to reply and spoke in conciliatory terms. But while sympathising to some extent with the proposals put forward, he absolutely declined to give an assurance that no further tropical labour should be recruited. Serious as the mortality returns he recently quoted undoubtedly were, Mr. Burton was fain to admit that there had been a considerable reduction, according to the statistics furnished him, since he last spoke on the subject. He stated that he had given definite instructions that tropical natives were not to be employed on mines where the high death-rates continued, but he declared that so long as the death-rates continued to diminish he would decline to interfere with the importation. The motion was defeated by an overwhelming majority.

The Miners' Phthisis Bill.

The Miners' Phthisis Bill, which was prepared in connexion with the report of the Miners' Phthisis Commission, was recently sent to a Select Committee, and the Bill as amended by the committee has just been laid on the Table of the House of Assembly. The Bill provides for a compensation fund which will provide for existing cases and those that occur within two years. To this fund the mining companies will contribute £100,000 sterling in two years, while the Government will put up a similar amount out of the proceeds of what is known as the "bewaarplaatsen" revenue. In addition, there is to be an insurance fund, which is to operate after the second year, and the revenues of which it is intended to derive, in equal amounts of £100,000 a year from now onwards, from the companies and the men respectively. In the third year after the commencement of this fund each company will have to contribute two-thirds and the men one-third instead of half and half as in the first two years. When this proportion comes into operation any company, or any number of miners not less than one-third of the total employed in a particular mine, may petition the Minister to have the mine removed from the list of contributors on the ground of improved health conditions. The Minister, in such an event, will be bound to order an investigation, and, if the result is to his satisfaction, he may either remove the mine entirely from the list or reduce the amount of the contribution which the mine and the men would otherwise have to pay. The poor mine is safeguarded by the provision that the total contribution levied in a year is not to exceed the amount of the average quarterly profit earned during the previous financial year. It is probable that Parliament and the public will accept the amended Bill as a creditable and statesmanlike attempt to solve a difficult problem. The majority report of the committee submits the amended Bill without comment, but recommends the advisability of the Government causing more effective inspection of every mine to be carried out by the Mines Department, and that for this purpose additional assistant inspectors of mines be appointed. The Right Hon. Mr. Merriman submits a separate memorandum recommending that statutory health commissioners advisory to, but independent of, the Mines Department should be appointed. He considers that such a commission would constitute an effective check on laxity. It would seem that in view of the reports of the committee the Government can hardly fail to institute more effective supervision, and probably Mr. Merriman's suggestion, short of establishing a proper health department, would be the most satisfactory solution.

Plague at Durban.

A recent Government gazette notified Durban free of plague, and clean bills of health to shipping at Durban were authorised as from May 11th. On May 29th, however, two fresh cases were reported, one being an Indian lad and the other a Zanzibar native. Both were living on premises adjoining those where the last plague rat was found some weeks ago, and both cases terminated fatally. A day or two afterwards a further case in a European was discovered in the same area and removed to Salisbury Hospital Island. The constant recurrence of cases in areas supposed to be cleansed, together with little signs of infection amongst rodents, is puzzling those in charge of the outbreak, and is causing doubts as to the thoroughness of some of the measures adopted.

Tuberculosis and Immigration.

An interim report has been submitted to the Government by the Tuberculosis Commission, with the idea that its recommendations might be embodied in the Immigration Bill now before Parliament. The Commissioners state that from the evidence before them it would appear that although consumption has existed to some degree for long past in the South African subcontinent, it is only within recent years that it has laid its grip upon certain portions of the community and assumed its present menacing proportions, and that while the rapidity of its spread, especially among the coloured races, has been due undoubtedly to racial, local, and other causes, it seems certain that the primary factor in its introduction into many centres until then free from it, and its extension in centres where it already existed, has been the immigration of consumptive persons, who mostly came to South Africa for the benefits of the climate. This view is supported by the apparently greater incidence of the disease in those towns originally much resorted to by consumptive patients from overseas, such as Beaufort West and Cradock. The Commission considers that theoretically it is desirable to exclude every immigrant suffering from tuberculosis, but points out that in practice there are a number of considerations which render such a step very difficult of accomplishment. It indicates the difficulties in this connexion experienced in Canada and America. Apart, however, from its inherent difficulty, there are other reasons advanced by the Commission why total exclusion of tuberculous immigrants is inadvisable. Furthermore, in the case of persons suffering from phthisis in its early stages, difficulty is felt by many in justifying action excluding them from the benefit which the climate of South Africa may afford them, provided they are able and willing and can be trusted to carry out such precautions as will reasonably ensure the safety of our own inhabitants. It is a well-established fact that residence in parts of South Africa, especially the higher and drier portions, often results in the permanent arrest of the disease in suitable cases. There is another objection to an attempt at rigid exclusion, and that is that whenever administrative measures of control involve excessive severity they tend to defeat their own ends by leading to evasion by the public. But although it may be impracticable to exclude entirely all tuberculous immigrants, the Commission is strongly of opinion that every legitimate means of discouraging such immigration should be adopted, and whenever such immigrants are admitted measures of a thorough kind should be insisted upon in order to prevent infection

June 1st.

THE DEVON AND CORNWALL SANATORIUM FOR CONSUMPTIVES, DIDWORTHY.—On June 29th the Mayor of Plymouth, in the presence of a large gathering, formally opened the new pavilion at Didworthy Sanatorium, which has been erected by the inhabitants of Plymouth as a memorial to the late King. The building is constructed of stone, and has a glass verandah in front. It provides accommodation for six male patients. The cost of the undertaking, including furniture and electric lighting, will be about £717.

TYPHOID FEVER AT ST. HELENS.—Major J. Stewart, R.E., conducted a Local Government Board inquiry at St. Helens recently into the application of the corporation for sanction to borrow the sums of £18,000 and £9000 for the conversion of the sanitary arrangements of the town to the water-carriage system. The town clerk asked that the loans should be spread over 20 years. In reply to the inspector as to the reasons for such wholesale conversions the medical officer of health said that St. Helens had always been subject to a great deal of typhoid fever, and was the worst town in England in that respect. Last year there was a serious epidemic of typhoid fever, there being no fewer than 200 cases, which was double the average of the past eight years. It had been found that typhoid fever had been most prevalent in houses where the old system of dry removal had ruled, and although the tub and pail system had reduced the amount of typhoid fever the water-carriage system would do more. Not only would it be beneficial from a health point of view, but financially it would be cheaper than the old method of dry removal. He was of opinion that the whole of the work of conversion would be completed in five years.

THE NATIONAL INSURANCE ACT.

THE ACT AND THE STATE SICKNESS INSURANCE COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

ON Wednesday, June 26th, an answer was received by the British Medical Association from the National Health Insurance Joint Committee to the communication sent to the Committee on Feb. 29th, 1912, in which were set out the minimum demands of the Association.[1] Beyond formal acknowledgment no notice was taken of that communication, and the State Sickness Insurance Committee, who came into charge of the negotiations, wrote on April 12th expressing their hope soon to receive a detailed reply. The Commissioners answered that they were relying upon the assistance which they hoped to obtain at an early date from the Advisory Committee, which, it may be remembered, was partly nominated by the British Medical Association. This was felt by the State Sickness Insurance Committee to be a misapprehension of the situation, inasmuch as the Advisory Committee was appointed to give advice in the preparation of the regulations, but could have no authority whatever to supersede the State Sickness Insurance Committee on points which a Special Representative Meeting of the Association had termed the irreducible minimum demand of their members. The State Sickness Insurance Committee asked for a direct conference with the Commissioners, who said that such a meeting would be desirable should the necessary circumstances arise. It was felt, however, by the British Medical Association, in view of the approach of the Annual Representative Meeting, and of the fact that, so far as the State Sickness Insurance Committee could see, there was no reason why a definite answer should not have been given before to the letter of Feb. 29th, that the Commissioners should be pressed further. A letter was accordingly sent to the Commissioners requesting an early reply to the demands formulated, whereupon the Commissioners said that a deputation from the Association would be received on June 7th. The result of this meeting was that the State Sickness Insurance Committee of the Association promised to forward to the Commissioners before June 12th, when the conference was to be resumed, all information in the possession of the Association that would support the demands for a monetary allowance of *8s. 6d.* per annum for medical attendance and treatment, exclusive of medicines and extras. This information was accordingly supplied in the form of a statement based on the evidence forthcoming from the present state of contract practice work, the present state of private practice, and the present conditions existent in State or municipal services. An analysis of the figures put forward by the Chancellor to the deputation on June 7th appeared to the Committee to show that, roughly speaking, 22,500 practitioners would be engaged in attending 12,000,000 insured and 24,000,000 uninsured persons, and that the gross income of a medical man would be £617. From this figure all the cost of conducting the practice has to be subtracted.

In the meantime the Commissioners had appointed a subcommittee to inquire into the whole question of medical remuneration, the outcome of which was the appointment of Sir William Plender to make an investigation into the receipts of medical practice at Cardiff, Darlington, Darwen, Dundee, Norwich, and St. Albans; the results of this investigation have, however, not been made known.

On June 26th the reply of the Commissioners to the letter of Feb. 29th was received, all the correspondence having been submitted to the Chancellor of the Exchequer who directed the terms of the document. The Commissioners account for the delay by the necessity of waiting for the advice of the Advisory Committee and for information from the British Medical Association, and they consider that some of the demands of the British Medical Association have been met by amendments incorporated in the Act. With regard to an income limit of £2 a week for those entitled to medical benefit the Chancellor considers that it would be impracticable and undesirable to fix a rigid and uniform limit throughout the country. With regard to the free choice of doctor, the Commissioners consider that this is now provided under the Act, but promise that in the regulations the statutory right of every insured person to select his medical attendant shall be made clear. With regard to the administration of medical benefits the Commissioners point out that these are now administered by the Insurance Committees and not by the Approved Societies. The Commissioners definitely state that the method of remuneration must be settled by the Local Insurance Committees and the Insurance Commissioners; and with regard to the amount of remuneration the Chancellor authorises the following statement:—

First, that the Government have always recognised that the average medical remuneration per head of the insured population on account of medical benefit under the Act should not only not be less than that received per head under existing conditions, but should equitably be greater, in view of the greater demands that are likely to be made upon the work of the profession under the Act than have hitherto been usual.

Secondly, in reference to a point understood to be the subject of special anxiety among many members of the medical profession, the Government recognise that the aggregate amount devoted to medical benefit must be such as to enable suitable payments to be made for certain extras, including night visits, mileage—especially in country districts—and possibly other matters, a list of which may be settled by negotiation between the Association and the Commissioners, if a general arrangement on all other matters can be arrived at.

Thirdly, on full consideration of all the information already in their possession, the Government would be willing, assuming the cordial coöperation of the profession in the working of the Act to be assured, to advise Parliament to make extra provision for meeting the cost of medical benefit beyond that originally assumed in the actuaries' calculations; but the Government, after giving due regard to the facts and arguments submitted by the British Medical Association in their memorandum a fortnight ago, can hold out no hope of such provision being made as would yield for medical remuneration the amount now demanded by the Association, viz., 8*s.* 6*d.* per insured person per annum for ordinary medical attendance only, to which is to be added payment to the doctor for extra services, and to which again must be added the cost of provision of drugs and appliances.

Assuming as an estimate of the cost of the extra medical services contemplated by the Association, the sum of £1,500,000, that is, 2*s.* 6*d.* per insured person, mentioned in the Memorandum of the Association, the average receipts of a practitioner, in respect of medical benefit alone, would be 11*s.* per insured person, to which must be added, in estimating his income derived from services to the insured, receipts in respect of sanatorium benefit, receipts from midwifery, and receipts for various kinds of work incidental to medical attendance which are not paid for out of the benefits, including, for example, furnishing certificates and reports for purposes other than those of the Act, and giving evidence in Courts of Law.

Assuming the insured in Great Britain to be twelve millions, and the number of practitioners taking part in this work to be 22,000, this would yield an average annual income of £300 per annum for each doctor for attendance upon the insured only, the number of insured persons whom he would attend in respect of this remuneration being on the average, 550.

Assuming the average clientèle of each medical practitioner to be 1800, these would consist, in a typical case, of approximately 550 insured persons, 1100 dependents of insured persons and other persons of the same economic position, and 150 persons of the middle and upper classes. In respect of the insured portion, constituting five-sixteenths of the whole, the Association demands that the practitioner shall receive £300 per annum in consideration of the services included in medical benefit alone. Adding amounts derived from other services, and assuming that the rest of the population are treated at not a lower average rate, the ordinary assured income of a practitioner in average practice (not of one specially successful) would be, on this basis, not less than £1100 per annum. Out of this sum the practitioner would not have to meet any expenditure for drugs.

The average income thus yielded would be so greatly in excess of what are ordinarily believed to be the present average earnings of the profession that the Chancellor cannot accept the conclusion that the sums available for remuneration under the Act must be raised to the point necessary to produce such a result.

I am to add that, in order to provide such a sum, it would be necessary for the Government to apply to Parliament for an additional grant of approximately four million pounds per annum, to be derived, of course, from general taxation—an amount equivalent to nearly 1¼*d.* in the pound in the income-tax. While, no doubt, Parliament would be willing to provide even so great an amount if the necessity of this were incontestably proved as the only means of obtaining efficient medical treatment for the insured, the Government do not feel, in view of the figures above stated, that the proposition can be regarded as capable of being justified to the House of Commons and the taxpayers of this country.

The letter concludes with the statement from the Commissioners that it is impossible to arrive at any satisfactory arrangement with the British Medical Association so long as those appointed to represent the views of the Association are given no power to negotiate in the ordinary sense. They suggest that if the Association desires to proceed with the discussion, representatives should be appointed with authority to arrive at a provisional agreement.

LEICESTER AND RUTLAND PUBLIC MEDICAL SERVICE.

We have received particulars for a scheme of public medical service which has been prepared by the medical practitioners of the Leicester and Rutland district. The papers sent to us by Dr. W. Moffat Holmes include a copy of the provisional rules of the service, a copy of a slip to be handed to each patient who is examined with a view to inclusion in the scheme, a copy of the statement sent by the

[1] THE LANCET, March 9th, 1912, p. 695.

local medical men of the neighbourhood to the local press, and a copy of the covering letter which has been sent to the secretaries of the various local Friendly Societies, together with the resignations of the medical officers.

The medical service is defined as an association of medical practitioners constituted to organise the provision of medical attendance and medicine for persons unable to pay the ordinary medical charges in the usual manner. The whole area of the service is to be subdivided into local areas, each corresponding to the areas of one or more of the Poor-law divisions of the counties. Medical members must undertake to conform to the rules of the service, and they may be either acting or honorary. Each member must refuse to take or continue to treat any contract patient at a lower rate than the subscriptions to be laid down in the rules of the service. These rates are not yet fixed definitely, but for the present we learn that the local practitioners taking part in the scheme are prepared to take on suitable persons at the provisional rate of 2½*d.* a week for insured workers and 1½*d.* for uninsured persons, and 1*d.* for children, but not to charge for more than four children in one family. Each local subdivision is to determine the income-limit for its area, but this in no case will exceed £2 a week. Free choice of doctor is provided, subject to the right of the medical man to decline to accept any subscriber. The contract of the subscriber will be with his medical attendant only and not with the service. The privileges of subscribers and the limitations of benefits in return for the capitation fee are laid down in the rules. Each applicant for admission to the benefits of the services is informed that after Jan. 15th, 1913, when medical benefit is obtainable under the National Insurance Act, there will be free choice of doctor in the district, either from those who go upon the panel, should the Government come to an agreement with the medical profession, or from the Leicestershire and Rutland Public Medical Service failing such an agreement; and in any case the service will provide medical treatment for all uninsured persons whose income is below that agreed upon in the district. The statement sent out to the local press explains how the Act in its present form would still further depreciate the very low present payment for contract work, and emphasises the fact that there is no intention on the part of the profession to "strike" in the sense of refusing to attend those who are ill; but medical men are prepared to offer an efficient medical service for an efficient remuneration in accordance with regulations agreed on by the local profession. The covering letter, sent with their resignations by the medical officers to the secretaries of the Friendly Societies, offers to give full particulars of the service and to arrange for meetings between representatives of the Friendly Societies and of the local profession for the purpose of discussing matters. We are informed finally that every medical man doing contract work in the neighbourhood has resigned every club appointment which he holds, and that these resignations were handed in on June 27th, to take effect in six months' time.

EAST OF SCOTLAND MEDICAL PRACTITIONERS AND THE ACT.

We have received the following report of the annual meeting of the Edinburgh Branch of the British Medical Association which was held on June 27th in the Royal College of Physicians Hall, Edinburgh. There were upwards of 100 members present, representative of the whole area comprising Edinburgh, Leith, the Lothians, Roxburghshire, Selkirkshire, Peebles-shire, and Berwickshire. It was unanimously resolved:—

1. That the meeting express its extreme disapprobation of the action of Dr. Matheson Cullen in accepting one of the paid medical officerships for Scotland under the National Insurance Act.

2. That the meeting express its strong disapproval of the action of Sir James Russell in agreeing to act on the Provisional Local Insurance Committee as medical representative of the town council of Edinburgh.

The acceptance of both these appointments is in direct antagonism to the declared and deliberate policy of the British Medical Association and the Scottish Medical Insurance Council. The branch thinks it right that the public should be informed that on account of the unfortunate methods the Government has adopted in its treatment of the medical profession, the best men in the profession absolutely decline to serve under the National Insurance Act until their reasonable demands are conceded. It shows, says the branch, a strange lack of business aptitude on the part of the authors of the Act that, although the terms of the medical profession have been clearly stated from the first, no settlement has been arrived at or is in prospect. This policy means that as the Commissioners are limited in their choice of medical officers the public are ill-served.

The foregoing resolutions are founded on Minute 78 of the representative meeting held in London in February last—

That it is an instruction to the Council to take all possible steps to ensure that no member shall take any office or work under the National Insurance Act other than that of the Advisory Committee, until such time as the minimum demands of the profession are conceded in the regulations or an amending Act.

The meeting further unanimously resolved to express its strong disapproval of Dr. Norman Walker's refusal to place his resignation as a member of the Scottish Advisory Committee in the hands of the Scottish Medical Insurance Council, to be used when found to be wise and expedient, and to call upon him to explain to the profession the reason for such decision on his part. It may be stated in explanation of this resolution that Dr. Norman Walker is the Direct Representative of the medical practitioners in Scotland on the General Medical Council in London. The practitioners in this area, being a section of his constituents, are of opinion that his action in this matter is not only diametrically opposed to the wishes of the profession, but is also harmful to its ideals and to the interests of the public. Further, of the 11 medical members of the Scottish Advisory Committee, Dr. Norman Walker is the only one who has refused to give an undertaking that he will resign his position on the Advisory Committee if called upon to do so by the Scottish Medical Insurance Council.

With reference to the invitation to the Provisional Medical Committees issued by the National Health Insurance Commission (Scotland) asking the Committee for the Lothians district to elect two of their number to serve on the Local Insurance Committee for each of the insurance areas, a reply has been sent stating that the practitioners in these insurance areas have unanimously resolved that they would not elect members to serve on the Provisional Insurance Committees until such time as the minimum demands of the profession are conceded in the regulations or an amending Act.—Dr. J. P. Campbell, of Whitburn, has intimated that he cannot see his way to accept the appointment offered him as medical representative of Linlithgowshire county council on the Provisional Insurance Committee for West Lothian, until such time as the minimum demands of the profession are met.

THE INCOME OF MARRIED WOMEN UNDER THE ACT.

A correspondent writes to point out that there is no provision in the National Insurance Act for considering together the incomes of a husband and wife in the same way as is done for income-tax purposes. The result is that a man who is earning £150 a year will have to insure, and if his wife is also earning anything under £160 a year she also will have to be insured if she is employed within the meaning of the Act; so that both husband and wife will receive the benefits, even though their united income is £300. Our correspondent wrote to the Commissioners asking for information on this point, and has received a reply to the effect that there is no provision in Part I. of the Act under which the incomes of the husband and wife are to be considered together, and that a married woman employed within the meaning of the Act at a remuneration not exceeding in value £160 per annum will, generally speaking, require to become insured whatever her husband's remuneration.

The suggestion naturally arises that the medical profession may be affected to a serious and unknown extent by this state of affairs, and our correspondent asks us to draw attention to the point in case it has not yet been considered by those who are negotiating with the Commissioners on behalf of the profession.

THE Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the appointment of Dr. Homer Fordyce Swift as chief resident physician at the hospital of the institute.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees held in Easter term the following candidates were successful:—

FIRST EXAMINATION.

Part I., Chemistry.—G. H. Bickley, Pembroke; J. M. Downie, Christ's; A. G. Irving, B.A., King's; and E. G. Snaith, Magdalen.
Part II., Physics.—W. H. Blackburn, Christ's; and A. G. Irving, B.A., King's.
Part III., Elementary Biology.—W. H. Blackburn, Christ's; C. V. Braimbridge, Downing; F. T. Burkitt, Christ's; A. E. Clark Kennedy, Corpus Christi; J. M. Downie, Christ's; E. O. Goldsmith, Pembroke; A. G. Irving, B.A., King's; H. J. T. Neilson, Trinity; and G. S. Taylor, Sidney Sussex.

SECOND EXAMINATION.

Part I., Human Anatomy and Physiology.—G. F. V. Anson, Trinity; J. V. Bates, Pembroke; C. C. Brewis, B.A., Downing; E. L. Caldwell Smith, Trinity; M. T. Clegg, B.A., Jesus; S. J. Cowell, Queen's; C. D. Day, B.A., Downing; J. Fairbrother, B.A., Caius; H. Gardiner Hill, Pembroke; H. L. Garson, Clare; G. L. Grant, Queen's; G. Habgood, Clare; R. Hargreaves, B.A., Caius; W. Hillbrook, B.A., Emmanuel; P. K. Liang, Caius; J. B. McFarland, B.A., Sidney Sussex; C. R. Mackenzie, Trinity; T. W. Melhuish, B.A., Pembroke; N. P. Norman, Downing; C. C. Okell, B.A., St. John's; G. Y. Oliver, Magdalen; J. H. Parry, B.A., St. John's; J. S. Pooley, B.A., Trinity; R. A. W. Procter, Clare; W. Raffle, St. John's; T. S. H. Schäfer, Caius; E. J. Selby, Downing; J. A. B. Snell, Caius; and T. T. B. Watson, B.A., Christ's.
Part II. (New Regulations), Pharmacology and General Pathology.—S. G. Askey, B.A., St. John's; M. W. K. Bird, B.A., Emmanuel; E. J. Bradley, B.A., Jesus; H. F. Brice-Smith, B.A., St. John's; A. E. Brown, B.A., Christ's; A. B. Buxton, Trinity; L. S. Fry, B.A., King's; C. L. Gimblett, B.A., Caius; H. A. C. Goodwin, B.A., Jesus; B. B. Jarejs, Trinity; G. C. King, B.A., Caius; H. W. Leatham, Trinity; G. R. D. McGeagh, B.A., Caius; W. D. Newcomb, B.A., Trinity; H. B. Padwick, Emmanuel; W. R. Purchase, B.A., Sidney Sussex; and P. W. Ransom, B.A., Pembroke.

THIRD EXAMINATION.

Part I. (New Regulations), Surgery and Midwifery.—P. W. Ransom, B.A., Pembroke; T. H. G. Shore, B.A., St. John's; and H. A. Williams, B.A., Emmanuel.
Part II. (New Regulations), Medicine, Pathology, Therapeutics, &c.—Pf. Roberts, B.A., Clare; and T. H. G. Shore, B.A., St. John's.
Part I. (Old Regulations), Pharmacology and General Pathology.—J. H. Baldwin, M.A., Emmanuel; W. N. Child, M.A., Christ's; M. Donaldson, B.A., Trinity; H. A. Douglas, B.A., H. Selwyn; A. G. Evans, Trinity; J. C. John, B.A., King's; A. Kennedy, B.A., Caius; W. M. Lupton, Clare; E. L. K. Sargent, B.A., St. John's; V. F. Soothill, B.A., Emmanuel; D. L. Spence, B.A., H. Selwyn; and H. A. Watermeyer, Caius.
Part II. (Old Regulations), Surgery, Midwifery, and Medicine.—W. B. Alcock, B.A., Trinity Hall; G. V. Bakewell, B.A., Clare; A. H. Birks, B.A., Caius; A. E. Bonny, Sidney Sussex; J. S. Burn, B.A., Trinity; E. G. S. Cane, B.A., Jesus; J. W. H. Chun, Trinity; J. W. Dew, B.A., Clare; G. E. Dyas, B.A., Caius; R. Ellis, B.A., Catharine; J. Ellison, B.A., Downing; W. J. Fison, M.A., Sidney Sussex; A. C. Gemmell, M.A., Trinity; E. F. W. Grellier, Downing; J. B. Hance, B.A., Christ's; J. M. Jarvie, B.A., Emmanuel; W. L. Johnson, B.A., Pembroke; A. Kennedy, B.A., Caius; R. S. Kennedy, B.A., Christ's; B. H. C. Lea-Wilson, Trinity; J. R. Marrack, B.A., St. John's; G. Moore, B.A., Clare; R. S. Morshead, B.A., Trinity; W. M. Oakden, B.A., Peterhouse; J. H. Pendered, B.A., and W. S. Perrin, M.A., Caius; C. H. G. Philp, B.A., St. John's; H. B. Pope, B.A., Caius; E. Rayner, B.A., C. E. Redman, M.A., and F. H. Robbins, B.A., Pembroke; F. G. Rose, B.A., St. John's; G. N. Stathers, Trinity; C. R. Taylor, B.A., and C. B. Wainwright, B.A., Caius; H. K. Waller, Trinity; Ll. McI. Weeks, B.A., J. B. A. Wigmore, B.A., and R. W. Willcocks, B.A., Caius; H. F. Wilson, B.A., Christ's; J. Winterbotham, B.A., King's; C. Worster-Drought, B.A., Downing; and C. R. Wright, B.A., Christ's.

UNIVERSITY OF OXFORD.—It is proposed to hold an election in Michaelmas term next to an Ordinary Fellowship in Magdalen College, after an examination having special reference to excellence in medical science. The person to be elected must have passed all the examinations required by the University for the degree of B.A., must be unmarried, and must not be in possession of any ecclesiastical benefice, or of any property, pension, or office tenable for life or during good behaviour, the annual value of which exceeds £300 per annum. The examination, which will begin on Oct. 1st, will include an English essay on a general subject, and papers in general physiology and general pathology, and in one of the following special subdivisions of the above subjects—i.e., physiological chemistry; the special physiology of excitable tissues, bodily movement, circulation, respiration, and secretion; the special physiology of the nervous system and sense organs; bacteriology and its relation to disease; the special pathology of disease; or psychology. Candidates may offer in addition chemistry or general biology, or human anatomy (including embryology), or histology; they will also be given the opportunity of showing their power of translating from scientific treatises in Latin, French, and German. There will be a *viva voce* examination at the discretion of the examiners, but practical work will not form any part of the examination. Candidates may further submit evidence of research work in the form of papers already published or accepted for publication. Candidates will be required to give notice to the President of Magdalen College not later than July 20th. The person elected will be expected to reside for three months during the first year after election, but this residence may be dispensed with for sufficient reason.—The Theodore Williams Scholarship in Human Anatomy has been awarded to Charles W. B. Littlejohn, B.A., New College, and the Theodore Williams Scholarship in Physiology to Gerald K. Bowes, scholar of Christ Church.—The following candidates have been approved in the undermentioned examinations:—

FIRST B.M.

Organic Chemistry.—E. Barnard, C. J. A. Buckell, W. S. Dawson, H. K. Denham, H. S. Jeffries, R. S. MacIver, K. A. I. Mackenzie, J. C. Paterson, N. L. Watt, and J. F. West.
Human Anatomy and Human Physiology.—H. E. Bamber, G. K Bowes, W. Burridge, W. H. Butcher, G. R. Cowie, R. J. W. A. Cushing, S. C. Dyke, G. T. Gimlette, T. E. Micklem, O. G. Parry-Jones, F. G. L. Scott, H. St. Hill Vertue, B. E. Wall, A. L. Watt D. M. P. Whitcombe, and J. B. Cavanagh.

SECOND B.M.

Materia Medica and Pharmacology.—J. D. Batt, G. W. Carte, I. C. Davis, P. G. Doyne, E. W. N. Hobhouse, J. Sainsbury, and G. P. Selby.
Pathology.—P. G. Doyne, R. C. Fairbairn, A. L. Pearce Gould, D. B. I. Hallett, N. F. Hallows, F. A. Hampton, M. O. Raven, T. O. Thompson, J. F. Venables, and S. B. White.
Forensic Medicine and Public Health.—F. W. Browne, D. B. I. Hallett, N. F. Hallows, W. I. Hart, A. Jackson, H. G. Morris, E. A. Ramaden, J. Sainsbury, E. Scott, G. Stanger, and S. B. White.
Medicine, Surgery, Midwifery.—J. L. Birley, A. Booth, C. H. Budd, N. G. Chavasse, H. T. Evans, P. L. Gibson, N. S. Lucas, D. P. MacDonald, E. A. Ramsden, G. Stanger, S. B. White, and J. A. Wood.

D.P.H.

Part I.—R. S. Agraval, R. Donald, K. P. Mather, and A. H Tebbutt.
Parts I. and II.—L. E. Acomb, W. A. Berry, F. G. Caley, H. K. Fry, and J. P. Johnson.
Part II.—W. F. Rhodes and W. P. Watson.

UNIVERSITY OF BIRMINGHAM.—At the final examination for the degrees of M.B., Ch.B. held recently the following candidates were successful:—

Class VI.—George Herbert Alabaster, George Ernest Elkington, John Burman Lowe,* Violet Maud McCready, Charles Lovell Spackman, Ronald Joseph Tennant Thornhill, and Alan Ayscough Wilkinson.
*Awarded Ingleby scholarship of £10 on examination in midwifery and diseases of women.

UNIVERSITY OF SHEFFIELD.—The following is the result of examinations for honours held recently:—

M.B., Ch.B., Final Examination.—Part B., completing examination: John P. Mathews (with distinction in Obstetrics and in Medicine, and clinical gold medal). Part A.: John Davidson, E. S. Dufty, J. E. Stacey (with distinction in Public Health and in Pathology), and L. E. Sutcliffe.
Diploma in Public Health.—Marion H. Archibald and Cyril Banks.

UNIVERSITY OF DURHAM.—At examinations held recently the following candidates were successful:—

FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Elementary Anatomy and Biology, Chemistry and Physics.—First-class Honours: John Gilmour. Pass List: Norman Braithwaite, Harry Cecil Broadhurst, Wilimore John Hooper, George Nathaniel Metzger, and Ralph Roylance Scott.
Chemistry and Physics.—John Brumwell, Dorothy Edith Butcher, George Albert Clark, Roy Neville Craig, Mary Russell Campbell, William Andrew Hewitson, John Horsley, Reginald Hunter, John Kerr Ritchie Landells, Phyllis Marriott, Reginald Stanley Millar, George Fleming Philip, William Oxley Forster Sinclair, and Kamel Ibrahim Shalaby.
Elementary Anatomy and Biology.—Stephanie Patricia Laline Hunte Daniel, Christopher Thomas Helsham, Donald Heneghan, Patrick Hickey, Robert Bourn Pirrie, and William Arthur Tweddle.

SECOND EXAMINATION.

Anatomy and Physiology.—Honours, Second Class: Henry Evers, College of Medicine, Newcastle-upon-Tyne. Pass List: John Francis Carter Braine, Guy's Hospital and College of Medicine, Newcastle-upon-Tyne; Cyril Charles Herbert Cuff, Guy's Hospital; Horace George Bennett Dove, Ethne Haigh, and Reginald Arthur Hooper, College of Medicine, Newcastle-upon-Tyne; Ah Chit Jap, M.R.C.S., L.R.C.P., Guy's Hospital; Edward Ek Dun Lau and John Eric Measham, College of Medicine, Newcastle-upon-Tyne; Claude Woodham Morris, M.R.C.S., L.R.C.P., University College Hospital; John Dover Proud, College of Medicine, Newcastle-upon-Tyne; Douglas Oliver Richards, Guy's Hospital; Hugh Gordon Sparrow, King's College and St. George's Hospital; Edgar James

Tyrrell, College of Medicine, Newcastle-upon-Tyne; and Harold Williamson, Charing Cross Hospital.

At the Convocation held on June 25th the following degrees were conferred:—

Doctor of Medicine.—Helen Grace Clark, Sebert Francis St. Davids Green, Duncan Matheson Johnston, Charles Gordon Kemp, and Charles Frederick Morris Saint.

Doctor of Medicine for Practitioners of 15 Years' Standing.—William Joseph Murphy Barry, Lilian Violet Cooper, Charles Corben, Arthur Edward Dodson, Edward Gibbs Gibbs-Smith, Herbert Edward Goulden, Charles Gaskell Higginson, Richard Henry King, James Charles McWalter, Robert Odell, Edward Albert Bodenham Poole, and John Ronaldson Russell.

Master of Surgery (M.S.).—Charles Frederick Morris Saint.

Bachelor of Medicine (M.B.).—John Bain Alderson, Evelyn Amy Constable, Norman Hodgson, Harold Llewellyn James, James Kerr, Francis James Lidderdale, Lionel Glover Pearson, Fred Phillips, Thomas Copeland Storey, Carl John Valfrid Swahnberg, and Samuel Knibb Young.

Bachelor of Surgery (B.S.).—Oscar Frederick Don Airth, Ronald Greig Badenoch, Evelyn Amy Constable, Reginald Cyril Herbert Francis, Norman Hodgson, Harold Llewellyn James, James Kerr, Francis James Lidderdale, Fred Phillips, Thomas Copeland Storey, and Samuel Knibb Young.

Diploma in Public Health (D.P.H.).—George Blenkhorn Harland and William Mackenzie.

FOREIGN UNIVERSITY INTELLIGENCE.—***Breslau:*** Dr. Alois Alzheimer, extraordinary professor, has been promoted to be Professor of Psychiatry and Director of the Clinic for Mental and Nervous Diseases, in succession to Dr. Bonhoeffer. Dr. Franz Kramer, *privat-docent* of Psychiatry, has been granted the title of Professor.—***Göttingen:*** Dr. Alfred Leber, oberarzt of the University Ophthalmic Clinic, and Dr. W. Uffenorde have been granted the title of Professor.—***Königsberg:*** Dr. E. Kallius, professor in Greifswald, has been offered the chair of Anatomy, in succession to Dr. Stieda, retired.

DONATIONS AND BEQUESTS.—By the will of the late Mr. B. L. Rose the testator left £1000 to the Hospital for Consumption and Diseases of the Chest, Brompton.—1000 guineas have been received from the Rev. Canon Wilson, trustee of the late Mrs. Morrison, of St. Helen's, Hastings, to name a bed in the Eversfield Hospital for Consumption and Diseases of the Chest, St. Leonards-on-Sea, to be called the George Edward Morrison bed.—St. Thomas's Hospital has received an anonymous gift of £20,000 towards the cost of a new out-patient department.—The Chelsea Hospital for Women has received from an anonymous donor "In Memoriam" the sum of £500 for its rebuilding fund.

THE STANHOPE SANATORIUM: PRESENTATION TO DR. WILLIAM ROBINSON.—The annual meeting of the governors of the Society for the Prevention and Cure of Consumption for the county of Durham was held, under the presidency of Lord Barnard, at the Stanhope Sanatorium on June 29th. The report of the men's sanatorium showed that some 138 cases had been treated, and of 45 in the first stage 23 had been cured. At the women's sanatorium there were 93 patients, of whom 32 in the early stage had been cured. Dr. Robinson, the founder and chairman of the society, was presented with a silver salver, a spontaneous gift on behalf of the workmen, governors, and committee. The presentation was made by Dr. R. S. Hubbersty.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Vyssokovich, formerly professor of pathological anatomy in the Siberian University of Tomsk.—Dr. Josef Brandt, formerly professor of surgery in the University of Clausenburg (Koloszvár), where he had taught surgery for some years before the Medical School was raised to the rank of a University Faculty, which occurred in 1871. He was then appointed to the chair, and held it until 1894, when he retired. His name is associated especially with renal surgery. He is stated to have performed an operation for the extirpation of a kidney as early as 1877. His age was 73.—Dr. Raphael Hausmann, the Nestor of the Meran physicians. He was greatly esteemed all over the Tyrol, the clergy of all religions showing by their presence at his funeral in the Jewish cemetery how sincerely and how generally he was respected. His age was 75.—Dr. J. J. Petersen, formerly professor of the history of medicine in the University of Copenhagen.—Dr. J. de Koningh, formerly chief of the Dutch Indian Medical Service, aged 73.—Dr. Wilhelm Mohn, of Christiania, captain in the Norwegian Military Medical Corps, aged 66.—Dr. W. J. Asdale, formerly professor of gynæcology in the Western Pennsylvania Medical College, Pittsburg.

Dr. Grimbert has been elected a Member of the Academy of Medicine of Paris.

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. Arthur Ernest Hayward, M.R.C.S., L.S.A., formerly medical officer for the Teignmouth district of the Newton Abbot Union, who is shortly leaving for Australia, had an interesting presentation made to him on June 27th, when Mr. W. Banbury, a guardian, on behalf of the subscribers, presented him with a handsome ebony walking-stick with ivory handle, bearing the following inscription on a silver band: "Given to A. E. Hayward, Esq., by the poor of Teignmouth, June, 1912."

CALEDONIAN MEDICAL SOCIETY.—The thirty-second annual meeting of the Caledonian Medical Society was held at Stonehaven on June 22nd. This society meets alternately in Scotland and England, and this year Stonehaven was chosen as the meeting-place owing to the present head of the society being Dr. W. A. Macnaughton, medical officer of health of Kincardineshire, who has occupied the presidential chair twice, the last time 20 years ago. The subject of the President's address was "The Life and Correspondence of Mr. James Grant, Factor of Pitarrow," who combined the businesses of a factor and a smuggler in the picturesque times of the "'45." A presentation was made to the President by the older members of the society of a fur motor coat and some works of Celtic literature, in recognition of the valuable work he has done for the society since its inception. In the evening the annual dinner was held in the Bay Hotel, Dr. Macnaughton being in the chair. There was a good attendance, and among those who proposed or responded to toasts were Emeritus Professor J. G. M'Kendrick (Provost of Stonehaven), Professor Matthew Hay, Rev. J. B. Burnett, Dr. A. C. Miller (Fort William), Dr. J. L. Waters (Hull), Dr. H. C. Gillies (London), Dr. D. Rorie (Cults), and Dr. T. D. Greenlees (London). Dr. M. Cameron Blair (Northern Nigeria) was elected President for next year, when the annual meeting is to be held in London.

ROYAL MICROSCOPICAL SOCIETY.—At a meeting of this society held on June 19th Mr. H. G. Plimmer, the President, being in the chair, a paper was read by Lord Avebury giving a short account of the development of pollen and of recent researches on fertilisation which show more and more complexity. He divided pollen into (1) aerial pollen carried by the wind, which was probably the original form, and was dry, spherical, and smooth; (2) aerial pollen carried by insects, which as a rule was elliptical, but often spherical, in which case it was generally spiny; and (3) sub-aqueous pollen, often elongated and filiform. The forms of pollen are very various, the commonest being elliptical with three ribs, and though the general colour is yellow, it is sometimes orange, violet, blue, purple, or white. Perhaps the most remarkable case is that of the loosestrife (Lithrum salicaria), in which the pollen of the short stamens is yellow, while that of the long ones is bluish-green. In discussing the size of pollen, Lord Avebury referred to a long table which he thought afforded conclusive evidence that though the size of the pollen did not depend entirely on the length of the pistil, and the length, therefore, which the pollen tube had to traverse, still, as a general rule, the longer the pistil the larger the pollen. The genus Mirabilus affords a very interesting illustration. It had been long ago noticed by Kolrenter that M. jalopa can be fertilised by the pollen of M. longifolia, but that M. longifolia cannot be fertilised by M. jalopa. No explanation of this curious fact had, so far as he knew, hitherto been suggested. He submitted that it was probably due to the relative size of the pollen and length of the pistil—the pollen of M. longifolia being considerably larger than that of M. jalopa; so that the pollen-tube of M. longifolia can reach the pistil of both species, while that of M. jalopa, though large enough for the pistil of its own species, is unable to reach those of M. longifolia. He concluded his memoir with a description of the pollen in the principal British orders. A paper on Some New Astrorhizidæ and their Structure was contributed by Mr. E. Heron-Allen and Mr. Arthur Earland. Dr. J. F.

Gaskell communicated "A Method of Embedding Tissues in Gelatin." The tissue is fixed in a formalin mixture. Previous to embedding all formalin must be removed by washing in running water for 12 to 24 hours. The gelatin is soaked for 3 to 4 minutes in cold water, then drained and melted, and the tissue is immersed in this for 2 to 5 hours in an incubator at 37° C. It is then cast in paper boxes in this gelatin and allowed to set at room temperature; when cool it is put into a formalin vapour chamber to harden. The hardening is not satisfactory in a less period than three days, and may be continued indefinitely till the block is wanted. Sections are cut by the freezing method, the block being pared down and attached to the stage of Aschoff's CO_2 freezing microtome by means of a drop of gum solution. Sections can be obtained of any tissue 10μ thick, and of most tissues hitherto tried 5μ sections are obtainable. The presentation of a testimonial and illuminated address to Mr. Frederick A. Parsons, F.R.M.S., who has recently retired from the post of assistant secretary, took place. Mr. Parsons had served the society for nearly 16 years.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Select Committee on Patent Medicines.

THE Select Committee of the House of Commons on Patent Medicines heard further evidence on Thursday, June 27th. Sir HENRY NORMAN was in the chair.

Mr. E. F. HARRISON, an analyst, who has made many analyses of secret remedies for the British Medical Association, was the witness. He said that he had been responsible for most of the analyses for the books of the British Medical Association, entitled "Secret Remedies" and "More Secret Remedies." The latter had not yet been published. As the result of his investigation he had come to the conclusion that legislation in regard to secret remedies was necessary. He said that it was necessary to distinguish between various classes of proprietary medicines. A large number of proprietary medicines were non-secret. There were instances in which medicine had been permanently enriched by substances which had first been brought forward as proprietary. There were also new combinations of old and well-established drugs. When he came to deal with secret proprietary medicines, witness said that they had one characteristic in common. They were intended for self-medication. As a rule, the suggestions made in connexion with them were strong and misleading. These articles varied very greatly in their merits and their price, and there were few in which considerable misrepresentation was not made in the advertisements. The advertisements of these articles were such that it was almost impossible for the proprietor of a secret remedy to obtain a great sale unless exaggerated claims were made. It followed, therefore, that perfectly satisfactory preparations were forced into exaggeration by the competition which existed. At present there was nothing to prevent quite ignorant persons without any medical or pharmaceutical knowledge from making up a medicine of worthless or harmless drugs and selling it at an enhanced price out of all proportion to the cost of production. Actual misstatements or directly false statements had been made freely, as well as statements which, although not absolutely false, were grossly misleading. The composition of these preparations might vary from time to time either through carelessness or intention. He could cite many instances of the ignorance of the manufacturers of these articles in putting them forward. In one case he had come across a statement to the effect that catarrh invariably created biliousness, constipation, and other ailments. In another case the statement was made that consumption germs could not live in the presence of copper, and that a certain preparation, as it contained copper, would drive out the germs.

The CHAIRMAN: I have before me an advertisement of a medicine which it is claimed will cure insanity, small-pox, diphtheria, and many other diseases.

Mr. HARRISON: And another maker puts forward this statement: "Animal substances, many of the most repulsive nature and origin, are almost invariably used by medical men the world over. Beetles, spiders' webs, crabs' eyes, tigers' tongues, rhinoceros horn, and other repulsive objects form part of the medica media now in vogue in the medical profession."

The CHAIRMAN: That might go down all right in China.

Mr. HARRISON went on to cite further claims made by the manufacturers of secret remedies. One of them said, "Alcohol is a singular product which no chemist has been able to analyse absolutely." That, of course, was ridiculous. Claims were set up to cure the most serious diseases. In one instance it was said in regard to one of these secret remedies: "Whatever you are suffering from it is sure to cure you." Another was stated to possess "the wonderful property of permeating every part of the organism." Witness went on to deal with the claims put forward in other cases. One he characterised as "gross impudence on the part of the advertiser," another as "preposterous," another as "ridiculous," and another as "an obvious and deliberate swindle." Many of these preparations were sent through the post direct to the consumer, and were not supplied through the retail dealer. Witness went on to compare the selling price of some of these articles with the estimated cost of the ingredients used in their preparation. In one case the price to the consumer was £2 10s., and the estimated cost of the ingredients 2½*d*. Pills were sold at 4s. 6*d*., and their estimated cost was a fifth of a penny. The estimated cost of a mixture sold at 13s. was 3*d*., and of another mixture sold at 11s. it was also 3*d*.

Sir PHILIP MAGNUS: Do you think any legislation is necessary to deal with proprietary articles which are more or less fairly described?

Mr. HARRISON: No. The legislation should be as to secret remedies.

Sir PHILIP MAGNUS: Do you think that Parliament should endeavour to prevent the sale of these secret remedies?

Mr. HARRISON: I would not be prepared to go as far as that. I think that this class includes some domestic remedies as good as the public is likely to get. I think that the legislation should be directed to put an end to the gross and flagrant abuses without putting an end to the better class of preparation. He went on to say that he thought that all the principal ingredients should be plainly declared on the label. That, he thought, would check the sale of swindles and of preparations professing to cure serious diseases.

Sir PHILIP MAGNUS: But do you think the public would be prevented from purchasing these preparations because the ingredients were stated on the label?

Mr. HARRISON: I think so. The public would then have a source of information. They might ask the medical man or chemist whether the preparation was a cure.

Sir PHILIP MAGNUS: They buy these things because they do not want to go to a medical man. I am not so hopeful that the publication of these ingredients would have any great effect on the sale of these remedies.

Mr. HARRISON: Very frequently a chemist is asked, "Do you know whether this or that patent medicine is good for some ailment or other?" The pharmacist replies, "How do I know?" If the ingredients were stated he could say it would not cure these things. The purchaser now goes away with the impression that there is something in these things.

Sir PHILIP MAGNUS: Do you think that legislation should prevent these exaggerated claims?

Mr. HARRISON: I think it would be possible to make a list of diseases which it might be made an offence to say in an advertisement that a particular medicine or preparation would cure. I think it might be made the duty of some official department to keep an eye on these things, and if a maker did put forward exaggerated claims he might be got at. In addition to the declaration on the label the quantity of certain ingredients should be stated—alcohol, for example.

Sir PHILIP MAGNUS: As the result of your analyses you conclude that many of these secret remedies are sheer frauds?

Mr. HARRISON: Yes, certainly.

Sir PHILIP MAGNUS: Do you think it would be proper to say that no medicine should claim to cure cancer?

Mr. HARRISON: I should say that as regards any secret remedy the claim should not be made. Witness went on to say that the sale of secret remedies was not at all confined to one class of the community.

The CHAIRMAN: I have received, as all of us do, communications in regard to these remedies, and I was absolutely amazed as to the testimonials given to them by people who belong to the upper classes.

Cross-examined by Mr. H. LAWSON, Mr. HARRISON said that the legislation which he favoured had nothing to do with the transfer of profits from one set of men to another. There was no desire on his part to interfere with the legitimate profits of those who owned proprietary medicines.

Mr. LAWSON: Do you object to all advertisement of the properties and tendencies of these medical preparations?

Mr. HARRISON: No. What I do object to are exaggerated and false statements about the preparations which are made possible by the fact that the ingredients are secret.

Mr. LAWSON: Where the ingredients are given, you do not object to advertisement, even if it involves self medication?

Mr. HARRISON: Not in the slightest. I think the public should be perfectly free to medicate itself at its own risk, but it should not be deliberately persuaded to do so by false advertisements.

Mr. LAWSON: You only want such reforms as would put a stop to actual fraud.

Mr. HARRISON: Quite so.

The cross-examination of the witness had not been concluded when the committee adjourned.

Deaths and Burials Bill.

A Bill designed "to amend the law relating to the registration of deaths and to burials" has been introduced in the House of Commons by Mr. GEORGE GREENWOOD. It was read a first time. The measure has the support of Mr. ATHERLEY-JONES, Sir JOHN ROLLESTON, Dr.

ADDISON, Mr. LEIF JONES, Mr. GORDON HARVEY, Mr. ROWLANDS, Mr. CECIL HARMSWORTH, Mr. PONSONBY, Mr. RADFORD, Mr. MANFIELD, and Mr. BENTHAM.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 26TH.

Hospitals and Legacy Duty.

Mr. MALCOLM asked the Chancellor of the Exchequer whether he had received a memorial from the British Hospitals Association asking for a remission to hospitals of the 10 per cent. legacy duty in respect of legacies bequeathed to them; and whether he could now grant this relief to these necessary public institutions.—Mr. LLOYD GEORGE replied: The answer to the first part of the question is in the affirmative. I regret I do not see my way to adopt the suggestion made in the second part, which would have to extend to all charities and could not be confined to hospitals. Such bequests are often made "free of duty," and in such cases the residuary legatee and not the charity would benefit by exemption.

Nurses' Registration.

Dr. CHAPPLE asked the Prime Minister whether his attention had been called to the fact that the Nurses' Registration Bill was now supported by the British Medical Association, the Matrons' Council of Great Britain and Ireland, the Royal British Nurses' Association, the Society for the State Registration of Trained Nurses, the Fever Nurses' Association, the Scottish Nurses' Association, the Association for the Promotion of Registration of Nurses in Scotland, and the Irish Nurses' Association, and that Acts for providing for the State registration of nurses had been passed in South Africa, in Queensland, in New Zealand, in Ontario, in 34 of the States in the American Union, in Germany, and in Belgium; and whether, in view of the necessity for the protection of the sick from unqualified nursing which assumed to be qualified, he would give facilities for the passage of the Bill already passed by the House of Lords or some other.—Mr. ASQUITH answered: I was not previously aware of all the facts cited by the honourable Member, but in any case I fear I cannot give facilities for the passage of a Bill on this subject.

District Nursing and the Insurance Act.

Mr. NEWTON asked the Secretary to the Treasury whether it would be in the power of Local Insurance Committees under the National Insurance Act to support village and district nurses by paying the whole or a part of the salaries of such nurses; and, if so, upon what funds the Local Insurance Committees would be able to draw for this purpose; and whether, in the event of such a course not being at present open to Local Insurance Committees under the Act, he would, in view of the probability that insured persons would not be able to continue to support such nurses in the same manner as heretofore and in view of the benefit to national health to be derived from the regular attendance of properly qualified nurses in the homes of the sick poor, consider the advisability of so amending the Act or issuing such a regulation as to enable Local Health Committees to defray the cost of providing the services of a nurse in each village or district where it was proved to the satisfaction of the Local Insurance Committee that the services of such a nurse had been or would be dispensed with as the result of the coming into operation of the National Insurance Act.—Mr. MASTERMAN replied: I would refer the honourable Member to Section 21 of the Act and to the answers given in April to the honourable Member for Wilton, to which I can add nothing at present.

THURSDAY, JUNE 27TH.

The Tsetse Fly in East Africa.

Mr. E. HARVEY asked the Secretary of State for the Colonies whether investigations had been made by the Government of British East Africa as to the healthiness of the new Southern Reserve recently allotted to the Masai; and whether any part of the Reserve was in the area where the tsetse fly was found.—Mr. L. HARCOURT replied: The Reserve has been visited by officials of the East Africa Protectorate, and in view of their reports I have no reason to suppose that the country is not a healthy one. It would be impossible to give an absolute negative to the last question of my honourable friend without a prolonged investigation by experts, but the evidence before me seems to negative any idea of the fly being prevalent, and I need hardly say that I should not have sanctioned the removal of the Masai to the Southern Reserve if I had grounds for even suspecting that it was open to objection on that account.

The Shops Act and Medical Appliances.

Mr. H. LAWSON asked the Under Secretary of State for the Home Department if he would issue a circular showing whether, under the Shops Act, medical appliances included spectacles, and whether the shops where they were sold were exempt from the half-holiday closing, as under the National Insurance Act spectacles were included in the list of medical appliances.—Mr. ELLIS GRIFFITH answered: I do not think there can be much doubt that the words "medical and surgical appliances" in the second schedule include spectacles, and that a shop may be kept open for their sale on the day of the weekly half-holiday, but the Home Secretary has no authority to decide the point, and it would be impossible for the Department to undertake to advise as to the application of the Act in particular cases.

Ireland and the Mental Deficiency Bill.

Mr. MACVEAGH asked the Under Secretary of State for the Home Department whether he was aware that the grant in aid in Ireland had fallen off considerably in late years owing to the increased number of mentally deficient persons admitted to the district asylums; and whether, in view of the resolutions of the Irish division of the Medico-Psychological Association of Great Britain and Ireland, the committee of management of the County Down District Asylum, and other similar bodies, he would take steps to have Ireland included in the scope of the Bill now before Parliament.

Captain CRAIG asked the honourable gentleman whether the Home Secretary would favourably entertain an amendment to the Mental Deficiency Bill extending its scope to Ireland.

Mr. ELLIS GRIFFITH: My right honourable friend is aware that the Local Taxation Ireland Account was insufficient to meet in full the claims against it in 1910-11 and 1911-12 owing to the increase of certain charges, and especially of the capitation grant for the maintenance of lunatic poor in county asylums, but the existing law in Ireland differs so much from that of this country that it will be convenient to deal with the question of the mentally deficient in Ireland in a separate Bill.

Captain CRAIG: Is the honourable gentleman aware that there is a general demand that this Bill, which could be applied to Ireland with small modifications, should be extended to Ireland and so save time?

Mr. ELLIS GRIFFITH: I shall be very glad to consider any general representations of that kind.

Hospital Employees and the Insurance Act.

Mr. BUTCHER asked the Secretary to the Treasury whether attendants and employees on the staff of private hospitals for the care of the insane, who received from their employers full wages and medical care during illness and who, if they were suffering from an infectious disease, were, at the cost of their employers, sent to a hospital for treatment, were compelled to become insured persons under the National Insurance Act; and, if so, whether there were any special approved societies which such attendants and employees could join in order to ensure that they got, under the Act or otherwise, benefits proportionate to the contributions made by them and their employers under the Act.—Mr. MASTERMAN furnished the following reply: The attendants and employees in question are compulsorily insurable. If, however, a custom or practice is shown to the satisfaction of the Commissioners to exist in these particular institutions for persons employed to receive full remuneration during sickness, the Commissioners will make a special order reducing the rate of contribution payable by, and in respect of, these persons in accordance with the terms and conditions of Section 47 of the Act. If adequate provision is also guaranteed by their employers for sickness and for permanent disablement, it may also be possible for such persons to come into some scheme for alternative benefits instead of sickness and disablement benefits under Section 13.

Penzance Workhouse Isolation Hospital.

Lord HENRY CAVENDISH-BENTINCK asked the President of the Local Government Board whether his permission had been sought by the Penzance board of guardians for the use of the workhouse isolation hospital for the children now in the workhouse, while new accommodation for infectious cases was to be provided outside the workhouse; and whether he would decline to sanction any such proposal, and instead require the guardians to find accommodation apart from the workhouse for the children.—Mr. BURNS wrote in reply: The answer to the first part of the question is in the affirmative. I have already communicated with the guardians urging them to provide accommodation for the children of school age entirely apart from the workhouse premises.

Medical Progress in the Crown Colonies.

Mr. L. HARCOURT (Secretary of State for the Colonies), in the course of his statement in Committee of Supply in regard to the progress which had been recently achieved in the Crown Colonies, made a survey of the medical work which had been accomplished. He said: Now I must take the Committee to the subject of medicine. Our Crown Colonies enjoy, or suffer, not only all the ordinary diseases of the temperate zones, but they add for themselves most of, if not all, the pestilences of the tropics. With the modern advance of medical science we are happily able to look to and depend more on prophylaxis than on cure. When American care and genius has turned Panama into a health resort, there need be no limit to our hopes for the future. The discovery of the mosquito as the carrier of malaria, the study of its life-history, and the methods of its destruction have put a new engine of hygienic progress in the hands of our medical staff. The recent realisation that the stegomyia of yellow fever finds its favourite birth-place in the rejected and rain-filled jam-pot has enabled elementary sanitation greatly to diminish this fell disease. In Ceylon ankylostomiasis, called here the Cornish tin-miners' disease, is being treated by prophylactic methods, and more than one West Indian Government is dealing, or preparing to deal, with the same disease.

The Treatment of Syphilis.

Throughout most of our tropical possessions (Mr. Harcourt continued) the natives are being dealt with, where and when possible, for the all-pervading and decimating disease of syphilis, both by the old mercurial and by the newer and more successful salvarsan treatment. This drug, till recently known as "606," from the number of the experiments by which it was procured, has occasionally and locally fallen into disrepute owing to some toxic mishaps arising from its arsenical origin, but on the whole its curative effects have been both rapid and permanent. It is not, however, a drug which can be easily exhibited to large numbers of ignorant natives; its full effect can only be obtained by intravenous injection, a more elaborate and delicate process than that of subcutaneous injection, and in any case it is found difficult, without compulsory powers, which do not exist, to retain the native for full and final treatment after the painful symptoms have subsided but before the cure is complete. I must, however, in relation to salvarsan mention the extraordinary results obtained with it in Ceylon and Trinidad in the treatment of a disease known as yaws (or framboesia from the character of its pustular rash). The experimental use of salvarsan was suggested by the similarity of some of the symptoms to those of syphilis, though the origin and character of the disease are wholly different. We owe the discovery of its effect on yaws to Dr. Strong, of the United States service in the Philippines, and independently to Professor Castellani, of Ceylon. The credit of the definitive results is due to Dr. Rost, of the German navy, and Dr. Cleaver and Dr. Alston, of Trinidad. In the Yaws Hospital in Trinidad during last year 500 patients were treated with salvarsan for this complaint, and the cures amounted to close on 100 per cent., so that at last we are able to regard this distressing malady as a curable and preventable disease. In British Guiana experiments on leprosy with nastin and benzoyl chloride, which at one time gave much hope of success, have unfortunately belied their early promise.

Beri-beri and Malaria.

But in the Federated Malay States (Mr. HARCOURT proceeded) the Research Institute at Kuala Lumpur has attained the almost certain diagnosis of the cause of beri-beri. This disease seems to be the product of the consumption by an exclusively rice-eating population of a highly polished commercial rice, from which in the process of polishing the phosphorus pentoxide has been removed with the pericarp. I hardly venture in the presence of some of my ultra-humanitarian friends to

mention an interesting and conclusive experiment by which you can practically kill a fowl by the prolonged administration of polished rice and revive it with a meal of the missing husk. Just now I referred to malaria, and I should like in passing to mention the steps which are being taken in the West Indies to deal with this disease. Those of us who have suffered from it (and I am one) are sadly conscious of the weary soaking in quinine till deafness supervenes, and the occasional alternative of arsenic, with cumulative discomforts, insufficiently compensated by an improved complexion. In Jamaica and British Guiana antimalarial measures have been vigorously and on the whole successfully applied: swamps have been filled; mosquito-infested bush has been cut down; quinine has been imported by the Government and sold at cost price on sugar estates and at the post-offices, and on many estates distributed free to the labourers; open drains have been cleaned and stocked with fish to eat the larvæ; the empty sardine tins and the broken bottle have been buried or removed; water receptacles have been compulsorily screened from infection, and popular lectures both on mosquitoes and the preventive use of quinine have been delivered by medical officers and others. The results have well repaid the labour. In British Guiana the recorded cases of malarial treatment were in 1907 34,000, and in 1911 they were 21,000, a reduction of 38 per cent. which appears to be entirely due to the antimalarial measures which have been taken.

Sleeping Sickness.

Undoubtedly the most anxious problem of the present and the future in tropical medicine, the right honourable gentleman went on to say, is that of sleeping sickness. For many years an obscure and happily not common disease, it has become either more patent or more diffused with the spread of commerce and civilisation, bringing, as both of them do, a new and unaccustomed mobility to the native populations. For some years lit has been known that the disease was endemic in certain lakeside districts which were the sole and particular haunt of that species of the tsetse fly known as Glossina palpalis. The habitat was fortunately not widely diffused and was dependent upon the contiguity of more or less stagnant water. Drastic, costly, and successful methods were adopted for its eradication. The scrub and bush surrounding the Central and East African lakes were cut down or burnt. Whole tribes were removed from the area of infection. The sufferers were segregated, and if not cured, for that is as yet a rare and wonderful event, were at least prevented from becoming carriers to their fellows or to the fly. All seemed going well, with a hopeful promise of ultimate eradication, when Nature, as if irate at human control, dashed our hopes through the scientific discovery that Glossina morsitans, the most common and most pervasive of tsetse flies, was also a carrier of infection, and many animals, both wild and domestic, have fallen under the almost proved suspicion of being the life hosts of the deadly trypanosome. The realisation of this horrible development has given rise to a too previous demand that all the suspect species of mammals should be ruthlessly destroyed. But the time is not yet, for the proof is not sure. Let me at once protest that my hesitation is not in the interests of the so-called big game. Indeed, it is quite likely that the infection is equally conveyed by small vermin. It is true that as a naturalist I should be very loth to exterminate a species which cannot be restored. Within the memory of living man the Great Auk has ceased to exist, and, still more remarkable, within a decade the passenger pigeon, which used to cover the United States with a migratory cloud, has been wiped out so completely that only one caged and living specimen is believed to exist to-day. But at the same time I would hesitate at no destruction of wild fauna if and when I was convinced that this holocaust was essential to the elimination of disease. In order to be sure of the facts and to secure scientific guidance for future action, however drastic, I have sent to Nyasaland a Commission of highly trained and distinguished men under the direction and personal supervision of Sir David Bruce. I am receiving from them frequent reports. I am watching the almost daily development of their diagnosis, and I shall shrink from no action which may seem to be dictated by the data of ascertained facts. The Commission which the British South Africa Company has sent to Rhodesia is obtaining valuable results which will materially assist the Commissioners in Nyasaland. But many of the empiric cures suggested by those who are not on the spot appear on consideration to be as bad as the disease. To talk of the extermination of the wild fauna of a sub-continent is to talk wild nonsense. The suggestion is only possible from those who take their geography from a school atlas. To give the natives power, permission, and material with which to drive back the game from the neighbourhood of their villages is both possible and desirable, but it carries with it in its train certain dangers. The game if infected—and that is the only reason for their removal—will then carry with them the trypanosome to some now immune area, and if the natural incubator is removed the fly will be more inclined and compelled to attack both man and his domestic animals. The acting principal medical officer of Nyasaland in his report of last year said: "The fly has adapted itself to new conditions and has learned to make use of man as its ordinary food where game used to supply its needs," and as a corollary he asks: "Why this enormous increase in the numbers of fly in districts where game was plentiful but does not now exist?" It is begging the question to say that when the game goes the Glossina morsitans goes. That is the specific inquiry on which the Commission is engaged. In my present belief civilisation will best destroy the morsitans, not by the removal of the wild game, but by the cultivation of the soil. Many additional precautions can be, and are being, taken pending the results of these inquiries. Some native villages are being removed. Others are being amalgamated because flies are more easily kept down in the *ceinture* of a large settlement. Fly-trapping may also be usefully adopted, as its success has been proved in German East Africa, but I would beg the Committee for the moment to believe with me that heroic measures founded on half knowledge are a mischievous form of human folly With the establishment of civilisation and administration intertribal communication increases beyond its ancient wont and the risk of spreading sleeping sickness is enlarged, so in the tropics at least the institution of law and order is not always a blessing in disguise.

Health in West Africa.

West Africa has enjoyed throughout its history an evil reputation in matters of health, but I have recently been able to lay before the House a return based upon statistics for the last nine years showing a most marked improvement in the hygienic conditions of that Coast. In spite of outbreaks of plague, yellow fever, and other pestilences, the death-rate of European officials in those nine years has fallen from 21 to 13 per 1000, and the invaliding-rate from 56 to 25 per 1000. This gratifying improvement is progressive, and is doubtless due both to sanitary care and a more careful mode of life by those whose duties compel them to reside there.

The Study of Tropical Medicine.

I cannot leave this matter without at least a few words on the subject of the study and pursuit of tropical medicine in this country. We owe a deep debt to the interest in this science of the right honourable gentleman the Member for West Birmingham (Mr. Chamberlain). It was largely due to his encouragement and activity that the Liverpool and London Schools of Tropical Medicine have reached their present status and efficiency. These schools render invaluable services to our colonies by the supply of competent and carefully trained students as recruits to our medical staff—of men who have had the opportunity of instruction in the specific diseases of the tropics, with which they will have to deal; and these schools also undertake a large amount of scientific research in tropical medicine, from the results of which we constantly profit. But the London School is much in want of further funds to extend its beneficent operations. I am glad to say we have recently secured a bequest by Lord Wandsworth of £10,000 for medical research, which has been allocated by Sir William Bennett to the provision of scholarships at the London School, but much more is needed, and I warmly commend this institution to the generosity of the public. During the last few years large sums have been spent in Uganda and Nyasaland in the investigation of tropical diseases there and contributions have been made from colonial funds to research work in connexion with Mediterranean fever, liver abscess in Fiji, vomiting-sickness in Jamaica, pellagra in the West Indies, and many other cognate matters. Permanent research laboratories have been established in the Federated Malay States, Ceylon, British Guiana, the Leeward Islands, and in Southern Nigeria. In the Colonial Office itself during the period of which I am speaking much progress has been made towards a better knowledge and supervision of these subjects. I have now a permanent committee to advise me on medical and sanitary matters connected with Tropical Africa, containing such distinguished men as Sir Patrick Manson, Sir Ronald Ross, Sir James Fowler, Dr. Thomson of the Local Government Board, and Professor J. R. Simpson. There is also a Committee of Entomological Research which was at first limited to Tropical Africa, but I am now making arrangements by which the self-governing Dominions, India, and the Crown colonies generally, can avail themselves of its services. And last, but not least, there is the Sleeping Sickness Bureau, which I am about to expand into a bureau dealing with tropical diseases generally, whether of men or of animals. In relation to tropical medicine it is impossible not to record the great loss sustained in the recent death of Sir Rubert Boyce, who rendered great services to the West Indies and to West Africa, or to the impending loss we are to suffer in the retirement of Sir Patrick Manson, who has for many years been the guide, philosopher, and friend of the Colonial Office and the Colonial Service.

I make no apology for having detained the Committee at this length on the important subject of medicine, even at the cost of some compression of other matters which I am still anxious to touch upon.

The Opium Habit.

The right honourable gentleman made a reference later in his speech to the measures taken to check the opium habit in Crown colonies. He said: In the matter of opium some advance has been made, though not, as I am painfully aware, as great as is desired by some of my honourable friends. I do not think that we differ as to the road or the goal, but only as to the pace. Since the Government of the Straits Settlements took over the monopoly of opium on Jan. 1st, 1910, the price has been steadily and deliberately raised throughout the whole of the Peninsula under British administration in order to decrease consumption without too immediate and excessive loss of revenue. The price was $3 per tahil when it was taken over. It was raised by successive steps to $4·80, and as lately as last month to $5·50. In Hong-Kong the number of chests to the "farm" has been limited. The "farm" is let in triennial periods, and that which expired in March, 1910, was entitled to 1200 chests, but on its renewal this amount was cut down to 900, and all opium divans have been absolutely prohibited. In Weihaiwei opium is totally prohibited except on medical certificate, and out of a population of 150,000 there are only 40 licensed consumers. The only importation of opium in the last years was three chests in 1909. In Ceylon no opium shops are permitted. Its use is limited to habitual consumers, who must be registered. They will in the course of nature die out and have no successors, but they may not disappear so soon as some may expect, for I remember that De Quincey's doctor said to my father, then a young man at Cambridge, that the effect of opium—or rather of laudanum drinking, which was De Quincey's vice—tended to prolong life, from the fact that it prevented wear and tear, just as your carriage would last longer if it never left the coachhouse. During last autumn and winter there was an international congress at the Hague in connexion with the opium traffic. The most important articles of the convention which were happily signed are those dealing with morphine, cocaine, and such drugs, and providing for an international control by the powers over the manufacture, sale, and export of these poisons. We shall be prepared at the proper time to take legislative measures for this purpose in this country, and I have already sent despatches to the Dominions and to such colonies as are not automatically parties to the convention asking that I may be authorised to agree to it on their behalf. In view of the grave and undoubted evils which have arisen from the compulsory reduction of opium, leading some people in some places to the more deadly vices of morphine and cocaine, I think that until by international action we can check this it might be unwise to proceed further to the desired goal—and it is a desired goal—of the total cessation of the opium habit.

MONDAY, JULY 1ST.

Epithelioma in Brickyards.

Mr. ALDEN asked the Secretary of State for the Home Department whether he had under consideration the disease which was caused by the use of creosote in brickyards by workmen whose special task it was to impart a certain finish to bricks by dipping them in a creosote solution; whether he was aware that when the fluid dried upon the hands blisters formed upon the skin, which developed into a kind of wart

eating into the flesh, and finally formed open wounds; whether he was aware that some men had had to have hands or arms removed for this reason; and, if so, whether he could see his way to schedule this particular form of industrial poisoning.—Mr. MCKENNA replied: My attention has been called to cases of disease in brickyards due to the use of creosote, and I have caused inquiry to be made. It appears that bricks are not dipped in creosote, but creosote is used for lubricating the dies of the brick-making machines, and some of it is liable to get on the hands and arms of the workers. The disease is already scheduled as epitheliomatous cancer or ulceration in the Home Office Order under the Compensation Act. Only one case is known in which the disease has resulted in the loss of a hand or arm. Frequent washing is the best precaution against the disease, and washing accommodation is being provided at the works.

Feeble-minded Workers and the Insurance Act.

Mr. BRIDGEMAN asked the Secretary to the Treasury whether the Insurance Commissioners had power to make regulations for the exemption from the provisions of the National Insurance Act of rural workers who were feeble-minded, epileptic, infirm, or otherwise only partially capable of earning a livelihood; and, if so, whether they proposed to exercise those powers.—Mr. MASTERMAN answered: The Commissioners have no general powers of the kind suggested in the question. Apart from the special provisions of the Act, such as those relating to outworkers or inmates of institutions, persons who are actually employed must be insured under the ordinary conditions, and the Commissioners have no power to exempt them by regulations. The second part of the question does not therefore arise.

TUESDAY, JULY 2ND.

The Medical Profession and the Insurance Act.

Sir PHILIP MAGNUS asked the Secretary to the Treasury whether, having regard to the nearness of the date when the National Insurance Act would come into operation, he could now state what progress had been made in the arrangements for securing the coöperation of members of the medical profession in the working of the Act; and, in the event of the Commissioners failing to meet the requirements of the doctors, what steps he proposed to take to provide medical benefit for insured persons, who would have commenced paying on July 15th for medical attendance under those clauses of Part I. of the Act relating to the cure of sickness.—Mr. MASTERMAN said in reply: I am unable at present to add anything to the previous statements I have made on the subject. The Act promises to all insured persons from Jan. 15th free medical attendance or a monetary equivalent. This promise has been set out in the insurance leaflets, and if the Commissioners find that the medical attendance in any district cannot be provided, the alternative which is provided in the Act will be given to all insured persons.

Sir P. MAGNUS: What is the amount of the monetary equivalent?

Mr. MASTERMAN: The amount calculated on the actuarial advice on which the Bill was framed was 6s., but I cannot commit myself to that amount at present.

Sir P. MAGNUS: Does the right honourable gentleman consider that the sum of 6s. can be regarded as a sufficient means of insuring the contributor?

Mr. MASTERMAN: It is one and a half times as much as the present rate at which five millions of the working classes are being treated.

Captain CLIVE asked the right honourable gentleman whether he had completed arrangements to provide medical benefits (doctor and medicine) before issuing the National Health leaflet, in which a guarantee was given that, except in special circumstances, a doctor and medicine would be provided.—Mr. MASTERMAN answered: The National Health leaflet specifically declares that one of the benefits of the Act will consist of doctor and medicine or, in special circumstances, money payments instead. The Commissioners will have no difficulty in fulfilling this promise.

Captain CLIVE: What are the special circumstances?

Mr. MASTERMAN: I think that a general strike of the medical profession, which I hope will not occur, would be a special circumstance.

The Sanatoria Grants in Ireland.

Replying to Sir JOHN LONSDALE, Mr. MASTERMAN said: Upon the recommendation of the Local Government Board for Ireland, the Treasury, after consultation with the Irish Insurance Commission, has approved the grant of a sum not exceeding £25,000 out of moneys available for sanatorium purposes under the Finance Act, 1911, to the Women's National Health Association of Ireland. There are no statutory conditions as to the audit and expenditure of these grants, which are, in terms of the Finance Act and the National Insurance Act, grants in aid of the institutions to which they are made, but the grants will be made subject to such conditions as will secure their being expended for the purposes for which they are intended. The particular grant now in question will be issued in instalments, the issue of each instalment after the first being made conditional upon the Local Government Board being satisfied as to the proper application of the preceding instalment, and arrangements will be made for securing that the institutions and services provided out of the grants shall be made permanently available for the treatment of tuberculosis.

Sir JOHN LONSDALE asked the Chief Secretary to the Lord Lieutenant of Ireland whether the Women's National Health Association, acting on behalf of certain county councils, had purchased the Peamount estate, near Lucan, for the purpose of sanatoriums for consumptives; whether a grant for the purchase had been authorised by the Local Government Board and approved by the Treasury; whether he could state what county councils the Women's National Health Association was acting for in this matter; whether these councils would be liable for any contribution from rates towards the capital expenditure incurred; whether he was aware that the Interim report of the Departmental Committee on Tuberculosis recommended that only three-fifths of the cost of sanatoriums should be defrayed from the grant; whether, if the Local Government Board had departed from this principle in the case of the association presided over by Lady Aberdeen, he would be prepared to give the same terms to other voluntary associations and to those county councils who found themselves competent to do their own work without the assistance of Lady Aberdeen's association; and would he undertake, if the whole of the purchase money for the Peamount estate was to come from the grant, that a professional independent valuer should be employed to report whether the estate was value for the money which the owner asked for it and which the Women's Health Association was willing to pay.—Mr. BIRRELL replied: The answer to the first two paragraphs of the question is in the affirmative. The Local Government Board understands that the Women's National Health Association was acting in coöperation with the councils of the counties of Leitrim, Meath, Westmeath, and Donegal. The arrangements between the association and county councils in regard to contributions are not yet definitely settled in each case, but the honourable baronet may rest assured that whatever conditions are imposed as regards the grants given to the Women's National Health Association and the counties working in coöperation with it will also apply to other counties and voluntary associations working on their behalf. Reports have been made by eminent experts testifying to the good quality of the land and the suitability of the estate for sanatorium purposes, and an independent valuation does not appear to be necessary. The estate has been conveyed to independent trustees.

WEDNESDAY, JULY 3RD.

Certificates for Sanatorium Benefit.

Mr. GODFREY LOCKER-LAMPSON asked the Secretary to the Treasury to state who would certify that an insured person was suffering from tuberculosis and was a proper case for sanatorium benefit in the event of no arrangement being come to with the medical profession by July 15th; and whether the insured person would have to pay for this certificate himself in addition to his contribution for sanatorium benefit.—Mr. MASTERMAN replied: The arrangements will depend on local circumstances. In some cases the Insurance Committees will probably arrange that the medical officers of the local authority will certify, and in other cases that a report from the private medical attendant of the patient will be accepted, the Insurance Committee having expert advice on the matter. It is contemplated that the cost of such certificates should be defrayed by the Insurance Committee where these arrangements are adopted.

BOOKS, ETC., RECEIVED.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London.

LIVERPOOL BOOKSELLERS' COMPANY, LIMITED, 70, Lord-street, Liverpool.

The Dawn of the Health Age. By Benjamin Moore, M.A., D.Sc., M.R.C.S., L.R.C.P. Price 1s. net.

EYRE AND SPOTTISWOODE, LIMITED, London.

Improvised Methods of Aid in the Field. For the Use of Voluntary Aid Detachments and Members of the Territorial Royal Army Medical Corps. By H. Mackay, M.D., T.D., Col. R.A.M.C.T., Assistant Director of Medical Services, Wessex Division. Second edition. Price 1s. 6d. net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, Edinburgh, Glasgow, and London.

Cunningham's Manual of Practical Anatomy. By the late D. J. Cunningham, M.D. Edin. et Dubl., D.Sc., LL.D. St. And. et Glas., D.C.L. Oxon., F.R.S., late Professor of Anatomy in the University of Edinburgh. Fifth edition. Edited by Arthur Robinson, Professor of Anatomy in the University of Edinburgh. Volume First. Superior Extremity; Inferior Extremity; Abdomen. Price 10s. 6d. net.

Children: Their Care and Management. By E. M. Brockbank, M.D. Vict., F.R.C.P., Honorary Physician, Royal Infirmary, Manchester. Price 3s. 6d. net.

Manual of Human Osteology. By A. Francis Dixon, M.B., Sc.D., University Professor of Anatomy and Chirurgery, Trinity College, Dublin. Price 10s. 6d. net.

Kidney Diseases. By W. P. Herringham, M.D., F.R.C.P., Physician to St. Bartholomew's Hospital, &c. With Chapters on Renal Diseases in Pregnancy. By Herbert Williamson, M.D., F.R.C.P., Assistant Physician-Accoucheur to St. Bartholomew's Hospital, &c. Price 15s. net.

Surgery of the Rectum. For Practitioners. By Sir Frederick Wallis, M.B., B.C. Cantab., F.R.C.S., Surgeon to Charing Cross Hospital, St. Mark's Hospital, and the Grosvenor Hospital for Women and Children. Price 15s. net.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

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A Practical Text-book of the Diseases of Women. By Arthur H. N. Lewers, M.D. Lond., F.R.C.P. Lond., Senior Obstetric Physician to the London Hospital; Examiner in Midwifery and Diseases of Women at the Conjoint Board of the Royal College of Physicians of London and of the Royal College of Surgeons of England. Seventh edition. Price 12s. 6d. net.

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La Stérilisation de la Syphilis. Par le Dr. Leredde. Price Fr.2.50.

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STATIONERY OFFICE, HIS MAJESTY'S, London. To be purchased, either directly or through any Bookseller, from Wyman and Sons, Limited, London; Oliver and Boyd, Edinburgh; or E. Ponsonby, Limited, Dublin.

For Official Use. Issued by the Board of Trade. The Ship Captain's Medical Guide. Edited by Charles Burland, M.D., F.R.G.S., Senior Medical Inspector of the Board of Trade. Price 2s.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BUCHAN, G. F., M.B., B.S. Glasg., D.P.H. Cantab., has been appointed Medical Officer of Health of Willesden.

CLARKE, CECIL, M.D., B.S. Lond., has been appointed Assistant to the Superintendent of the Laboratories at the Hospital for Consumption, Brompton, S.W.

CRISP, JAMES ELLIS, M.R.C.S., L.S.A., has been appointed Medical Officer to the Scattered Homes by the Chippenham (Wilts) Board of Guardians.

GLYNN, E. E., M.D. Cantab., M.R.C.S., M.R.C.P. Lond., has been appointed George Holt Professor of Pathology in the University of Liverpool.

RANDOLPH, WILLIAM HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the No. 2 District by the Dulverton (Somerset) Board of Guardians.

ROBINSON, W. E., M.D., B.Ch. Oxon., has been appointed Visiting Anæsthetist to the Royal Waterloo Hospital for Children and Women.

STRAIN, T., M.D. Glasg., D.P.H. Cantab., has been appointed Medical Officer of Health and School Medical Officer for the District of Heston and Isleworth

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

BARNSLEY, BECKET HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRMINGHAM INFIRMARY, Dudley-road.—Two Assistant Medical Officers. Salary £104 per annum, with apartments, rations, laundry, and attendance.

BRENTFORD UNION.—Medical Officer for No. 8 (Hounslow) District. Salary £175 per annum.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, lodging, and washing.

BRISTOL GENERAL HOSPITAL.—House Physician for six months. Salary £80 per annum, with board, residence, &c.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Second House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CANCER HOSPITAL, Fulham-road, S.W.—House Surgeon for six months. Salary £70 per annum.

CANTERBURY BOROUGH ASYLUM.—Locum Tenent Assistant Medical Officer for six weeks. Salary £4 4s. per week.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—House Surgeon for six months. Salary £30, with board, residence, and laundry.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant for three months.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Physician to Out-patients.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, washing, and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—Junior House Surgeon. Salary £90 per annum, with rooms, board, washing, and attendance.

CROYDON GENERAL HOSPITAL.—Anæsthetist and Casualty Surgeon. Salary £75 per annum, with board, laundry, and residence.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £60 per annum, with apartments, board, &c.

DORCHESTER, COUNTY ASYLUM.—Third Assistant Medical Officer. Salary £160 per annum, with board, &c.

DREADNOUGHT HOSPITAL, Greenwich.—Assistant Surgeon.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

FLINTSHIRE EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Junior Assistant Medical Officer for six months. Salary at rate of £100 per annum, with board, apartments, and washing.

GORDON HOSPITAL FOR RECTAL DISEASES, Vauxhall Bridge-road, S.W.—Resident House Surgeon for six months.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

GRIMSBY AND DISTRICT HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board, lodging, attendance, and washing.

HAMPSTEAD, BOROUGH OF.—Medical Officer of Health. Salary £600 per anunm.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Surgeon to Out-patients.

HEREFORD COUNTY AND CITY ASYLUM, Burghill, Hereford.—Assistant Medical Officer, unmarried. Salary £130 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas. Also Assistant Resident Medical Officer. Salary £100 per annum, with board and residence.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and House Surgeon, unmarried, both for six months. Salary in each case £30, with board, residence, and washing allowance.

HULL ROYAL INFIRMARY.—Assistant House Surgeon. Salary at rate of £60 per annum for six months, or £80 per annum for twelve months, with board and lodging.

KING'S COLLEGE HOSPITAL, London.—Sambrooke Medical Registrar. Also Assistant Surgeon.

LEAMINGTON SPA, WARNEFORD GENERAL HOSPITAL.—House Physician. Salary £85 per annum, with board, residence, and laundry.

LEICESTER INFIRMARY.—Assistant House Physician for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

LEICESTER POOR-LAW INFIRMARY.—Second Resident Assistant Medical Officer. Salary £130 per annum, with rations, apartments, and washing.

LINCOLN MENTAL HOSPITAL, The Lawn, Lincoln.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, &c.

LIVERPOOL, WEST DERBY UNION, MILL ROAD INFIRMARY.—Assistant Resident Medical Officer, unmarried. Salary £125 per annum, with board, &c.

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MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board and residence. Also Junior House Surgeon. Salary £80 per annum, with board and residence.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—House Surgeon. Salary £75 per annum, with board and residence.
MANCHESTER CORPORATION.—Female Medical Officer under the Midwives Act, 1902, as Executive Officer. Salary £250 per annum.
MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer and Pathologist. Salary £60 per annum.
MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary £100 per annum.
METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Assistant House Physician and Assistant House Surgeon for six months. Salary in each case at rate of £40 per annum, with board and washing.
NATIONAL HOSPITAL FOR THE RELIEF AND CURE OF THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Two Assistant Physicians for Out-patients. Also Registrar. Salary £150 per annum.
NEWCASTLE-UPON-TYNE, CITY AND COUNTY TUBERCULOSIS DISPENSARY.—Medical Officer. Salary £350 per annum.
NEWTON, MONTGOMERYSHIRE, KING EDWARD VII. WELSH NATIONAL MEMORIAL.—Tuberculosis Physicians. Salary £400 to £500 per annum.
NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, light, and fuel.
OLDHAM ROYAL INFIRMARY.—Third House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and laundry.
OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Casualty House Surgeon, unmarried, for six months. Salary at rate of £80 per annum, with board, &c.
PAISLEY, ROYAL ALEXANDRA INFIRMARY, Barbour Park.—Senior Resident House Physician and Junior Resident House Surgeon. Salaries £100 and £60 per annum respectively, with bed and board.
PAPA WESTRAY, ORKNEY, PARISH COUNCIL.—Medical Officer and Public Vaccinator. Salary £95 per annum.
PARISH OF ST. GILES INFIRMARY, Brunswick-square, Camberwell.—Third Assistant Medical Officer. Salary £140 per annum, with apartments, board, and washing.
ROUSAY AND EGILSHAY PARISH, Orkney.—Resident Medical Officer. Salary £71 per annum.
ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Anæsthetist. Salary £100 per annum.
ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum.
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ST. MARY'S HOSPITAL, London, W.—Junior Casualty House Surgeon for six months. Salary £100 per annum, with board and lodging
SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Resident House Surgeon. Salary £80 per annum, with board and residence.
SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Senior and Assistant House Surgeons, unmarried. Salary £80 and £60 per annum respectively, with board, residence, and laundry.
SHEFFIELD ROYAL HOSPITAL.—Sixth Resident, unmarried. Salary £60 per annum, with board, lodging, and washing.
SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £70 per annum.
SOUTHAMPTON FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.
STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and laundry. Also House Surgeon. Salary £120 per annum, with board, residence, and laundry.
TUNBRIDGE WELLS GENERAL HOSPITAL.—House Physician, unmarried. Salary £100 per annum, with board, residence, &c.
WALSALL AND DISTRICT HOSPITAL.—House Physician and Casualty Officer. Salary £90 per annum, with board, residence, and laundry.
WANDSWORTH UNION INFIRMARY, St. John's Hill, near Clapham Junction.—Junior Assistant Medical Officer, unmarried. Salary at rate of £120 per annum, with board, lodging, and washing.
WEST LONDON HOSPITAL, Hammersmith-road, W.—Surgeon.
WESTMINSTER GENERAL DISPENSARY, 9, Gerrard-street, Soho, W.—Resident Medical Officer. Salary £120 per annum, with rooms, gas, coals, and attendance.
WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with board and lodging.
WOOLWICH TUBERCULOSIS DISPENSARY.—Assistant Medical Officer. Salary £225 per annum.
WORCESTER COUNTY AND CITY ASYLUM, Powick.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, washing, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

BONHÔTE HENDERSON.—On June 26th, at Salisbury, the wife (Katherine Smijth-Windham) of T. Bonhôte Henderson, M.A., M.B. Oxon., F.R.C.S. Eng., of a daughter.
DRAKE.—On June 25th, at Leigham-avenue, Streatham, the wife of Courtenay H. Drake, F.R.C.S., of a daughter.
FAIRBANK.—On June 26th, at Harley-street, W., the wife of H. A. T. Fairbank, M.S., F.R.C.S., of a son.
LETCHWORTH.—On June 29th, at 68, Claremont-road, Surbiton, the wife of T. W. Letchworth, M.B., F.R.C.S., of a son.

DEATHS.

MURRELL.—On June 28th, William Murrell, M.D., F.R.C.P., Senior Physician to Westminster Hospital.
PEDLER.—On July 1st, at 235, Knightsbridge, S.W., Maria Stratford Howard, wife of G. Henry Pedler, and daughter of the late Rev. Daniel Gilliett, of Geldestone Rectory, Norfolk, aged 62 years. Funeral service, All Saints, Ennismore-gardens, 12.15, Friday.
SCOTT.—On June 26th, at Rumbold House, Ilkley, Thomas Scott, M.D.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE COUNTRY SURGEON.

A CORRESPONDENT turning over an old book of verses that he had not read for many years came across the following poem entitled "The Country Surgeon." The book is "The Poetical Scrap-book," published at Edinburgh in 1824.

Luckless is he whom hard fates urge on
To practise as a country surgeon—
To drag a heavy galling chain,
The slave of all for paltry gain—
To ride regardless of all weather,
Thro' frost, and snow, and hail together—
To smile and bow when sick and tired,
Consider'd as a servant hired.
At every quarter of the compass,
A surly patient makes a rumpus,
Because he is not seen the first,
(For each man thinks his case the worst
And oft at two points diametric,
Call'd to a business obstetric.
There lies a man with broken limb,
A lady here with nervous whim,
Who, at the acme of her fever,
Calls him a savage if he leave her.
For days and nights in some lone cottage,
Condemned to live on crusts and pottage,
To kick his heels, and spin his brains,
Waiting, forsooth, for labour's pains;
And that job over, happy he,
If he squeeze out a guinea fee.
Then, worn like culprit on the wheel,
He sits him down to hasty meal;
He sits! when, lo! a patient comes,
With rotten tooth and putrid gums:
The doctor takes his dentist tools,
Fixes the screw, and tugs and pulls;
His dinner cold, his hands this mess in,
All for a shilling or a blessing.
Now comes the night—with toil opprest,
He seeks his bed in hope of rest:
Vain hope! His slumbers are no more,
Loud sounds the knocker at the door—
A farmer's wife, at ten miles distance,
Groaning, calls out for his assistance:
Fretting and fuming in the dark,
He in the tinder strikes a spark,
And, as he yawning heaves his breeches,
Envies his neighbour blest with riches.

Anon.

A CAUTION.

To the Editor of THE LANCET.

SIR,—May I ask you to allow me to caution your readers that should a man calling himself Richard Nunn, and giving his qualifications as M.B., B.Ch., apply for either "locum" work or monetary aid, before giving either they should communicate with me at the offices of the Medical Defence Union, 4, Trafalgar-square, London, W.C.

I am, Sir, yours faithfully,

June 26th, 1912. A. G. BATEMAN, General Secretary.

"KILL THAT FLY."

THE July number of *Pearson's Magazine* contains an illustrated article on the house-fly as a carrier of disease, which is intended to arouse the public to take part in the campaign against this dirty and dangerous insect. The article is well got-up, and has been prepared with the assistance of medical men and entomologists. If the lessons which it teaches so graphically are taken to heart by the general public, there is some prospect that the fly evil throughout the country may be much reduced from this summer onwards.

A MEDICAL STUDY TOUR ("A. P. M.")

THE Study Tour of the ninth session of the "Association Internationale de Perfectionnement Scientifique" (Scientific Improvement International Association), patronised by the French Government, has been organised by the Central Board as follows. The tourists will meet on August 8th at Besançon, and follow this itinerary: Salzburg, Königsee, Saltmines of Berchtesgaden, Reichenhall, Tauern, Karawankes, Wochein, Adelsberg Grots, Agram, Danube, Passages of Kazan, Iron Doors, Bucarest, Constantinople (Pera—Stamboul—Scutari), Sofia, Belgrade, Fiume, Abbazia (the Nice of the Adriatic), Trieste, the Peninsula of Miramare, Venice. The tour ends on August 30th at Aix-les-Bains. Intending subscribers are requested to write as soon as possible to the "A. P. M." Office, 12, Rue François-Millet, Paris XVIe, or to apply personally on Wednesdays and Saturdays from 3 to 4 P.M. The tour, we are informed, will take place under good auspices, as the sections of the "A. P. M." at the Balkans and Constantinople have prepared their plans with great care.

S. Le P.—Our correspondent's suggestion is not, we think, practicable. The strain upon the in-patient accommodation of most general hospitals is already as great as they can bear.

M. G. (*Leeds*) has not appended his name to his request for information.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for July:—

May to October (London, Earl's Court).—Shakespeare's England.
July 2nd-6th (Doncaster).—Seventy-third Annual Show of the Royal Agricultural Society of England.
„ 4th-8th (Dublin).—Celebration of the Bicentenary of the School of Physic in Ireland (Medical School of Trinity College, Dublin).
„ 11th and 12th (Gloucester).—Seventy-first Annual Meeting of the Medico-Psychological Association of Great Britain and Ireland.
„ 12th-16th (London).—Imperial Conference of Teachers' Associations.
„ 17th-19th (Oxford).—Oxford Ophthalmological Congress.
„ 19th-27th (Liverpool).—British Medical Association, Eightieth Annual Meeting.
„ 24th-30th (University of London).—First International Eugenics Congress.
„ 25th-28th (Berlin).—Royal Institute of Public Health.
„ 26th-31st (Prague).—Sixth International Congress of Radiology and Medical Electrology.
„ 29th-August 3rd (York).—Congress and Exhibition of the Royal Sanitary Institute.
„ 29th—August 3rd (The Hague).—Second International Moral Education Congress.

Medical Diary for the ensuing Week.

SOCIETIES.

SOCIETY FOR THE STUDY OF INEBRIETY, Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.
TUESDAY.—4 P.M., The President (Mrs. M. Scharlieb, M.D.): Short Address.—Dr. T. B. Hyslop, Inebriety and Art (illustrated by the epidiascope).

OPHTHALMOLOGICAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
THURSDAY.—5 P.M., Special Meeting to Consider the Question of Amalgamation of the Ophthalmological Society of the United Kingdom with the Royal Society of Medicine. 8 P.M., Ordinary Meeting. Card Specimens will be shown by Mr. Jessop and Mr. T. Collins. Papers:—Mr. B. James and Mr. S. Hosford: The Operative Treatment of Glaucoma. The Annual General Meeting will be held immediately after the Ordinary Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.
MONDAY.—4 P.M., Dr. G. Pernet: Clinique (Skin). 5.15 P.M., Lecture:—Dr. W. H. B. Stoddart: Hysteria and its Relation to Mental Diseases.
TUESDAY.—4 P.M., Dr. C. O. Hawthorne: Clinique (Medical). 5.15 P.M., Lecture:—Dr. G. N. Pitt: Aphasia.
WEDNESDAY.—4 P.M., Mr. J. Cantlie: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. A. H. Cheatle: Some Points in the Surgical Anatomy of the Temporal Bone (lantern demonstration).
THURSDAY.—4 P.M., Mr. P. Turner: Clinique (Surgical) 5.15 P.M., Lecture:—Mr. E. M. Little: Spastic Paraplegia and its Treatment.
FRIDAY.—4 P.M., Mr. J. G. French: Clinique (Ear, Nose, and Throat). 5.15 P.M., Lecture:—Dr. W. Wingrave: Examination of Blood.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstrations of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Armour: Operations for Hernia.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11 A.M., Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Lloyd Williams: Conditions Favourable to Infections from the Mouth and their Treatment.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations on the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture: Mr. Lloyd Williams: Intoxications and Infection from the Mouth.
THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn; Diseases of the Eye. 5 P.M., Lecture:—Mr. Armour: Operations for Hernia.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Clinical Lecture:—Mr. Pardoe: Urinary Surgery.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).
TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. A. Duncan).

LONDON HOSPITAL MEDICAL COLLEGE, Clinical Theatre, London Hospital, Mile End-road, E.
MONDAY.—4.15 P.M., Clinical Lecture:—Dr. H. Head: Diagnostic Value of Sensory Changes in Diseases of the Nervous System.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lectures:—Dr. A. Turner: Epilepsy.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
TUESDAY.—6 P.M., Dr. W. K. Sibley: Eczema.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4 P.M., Dr. C. Miller: Pulmonary Fibrosis in Children.

Special Course of Practical Instruction on the Diagnosis and Treatment of Pulmonary Tuberculosis:—
MONDAY.—10.30 A.M. to 12.30 P.M., Case-taking in the Wards. 12.30 P.M. to 1.30 P.M., Dr. Young: Demonstration in the Out-patient Department of Cases illustrating Pulmonary Tuberculosis in Childhood. 2 P.M. to 3 P.M., Mr. S. Boyd: Demonstration of Cases illustrating the Surgical Complications of Pulmonary Tuberculosis. 3 P.M. to 4 P.M., Dr. B. Shaw: Demonstration in the Wards of Cases illustrating Common Complications of Pulmonary Tuberculosis.
TUESDAY.—10.30 A.M. to 12.30 P.M., Dr. Inman: Demonstration in the Laboratory on the Nature of the Different Tuberculins and the Technique of Administration. 12.30 P.M. to 1.30 P.M., Dr. Jex-Blake: Demonstration in the Out-patient Department of Cases Simulating Pulmonary Tuberculosis. 2 P.M. to 3 P.M., Dr. Dundas Grant: Demonstration in the Throat Department of Cases illustrating Tuberculous Disease of the Upper Air Passages. 3 P.M. to 4 P.M., Dr. Hartley: Demonstration in the Wards of Cases illustrating the Treatment by Tuberculin.
WEDNESDAY.—10.30 A.M. to 12.30 P.M., The Practical Administration of Tuberculin to Selected Cases in the Wards. 12.30 P.M. to 1.30 P.M., Dr. C. Wall: Demonstration in the Out-patient Department of Cases of Pulmonary Tuberculosis of Long Duration. 2 P.M. to 3 P.M., Dr. B. Shaw: Demonstration in the Museum of the Morbid Anatomy of the Complications of Pulmonary Tuberculosis. 3 P.M. to 4 P.M., Dr. Perkins: Demonstration in the Wards of Cases illustrating the Mode of Selection for Sanatorium Treatment. 4 P.M. to 5 P.M., Dr. C. Miller: Lecture and Demonstration on Cases of Pulmonary Fibrosis in Children.
THURSDAY.—10.30 A.M. to 12.30 P.M., Dr. Inman: Demonstration in the Laboratory on Immunity in Tuberculosis. 12.30 P.M. to 1.30 P.M., Dr. Young: Demonstration in the Out-patient Department of Cases of Chronic Bronchitis and Pulmonary Tuberculosis. 2 P.M. to 3 P.M., Dr. S. Melville: Demonstration in the Radiographic Department of Cases of Suspected Pulmonary Tuberculosis. 3 P.M. to 4 P.M., Dr. Habershon: Demonstration in the Wards of Cases illustrating the Dyspepsia of Pulmonary Tuberculosis.
FRIDAY.—10.30 A.M. to 12 noon, Dr. Inman: Demonstration in the Laboratory on the Modes of Infection in Pulmonary Tuberculosis. 1.5 P.M., Departure from Waterloo (South Station) for Frimley. Demonstration at the Frimley Sanatorium. The return train reaches Waterloo at 7.1 P.M.
SATURDAY.—10.30 A.M. to 12.30 P.M., Resident Medical Officer: Demonstration in the Hospital of Hygienic Precautions Necessary in Pulmonary Tuberculosis, Methods of Sputum Collection and Disposal, Diets, &c. 12.30 P.M. to 1.30 P.M., Dr. C. Miller: Demonstration in the Out-patient Department of Cases illustrating Pulmonary Tuberculosis in Association with Other Diseases. 2 P.M. to 3 P.M., Dr. Wall and Dr. Miller: Examination of Cases in the Out-patient Department. 3 P.M. to 4 P.M., Dr. H. Mackenzie: Demonstration in the Wards of Cases illustrating the Principles of Prognosis.

ANCOATS HOSPITAL, Manchester
THURSDAY.—4.15 P.M., Dr. W. J. S. Bythell: Some Points on the Value of X Rays in Diagnosis. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. Fothergill: Retroversion and Ovarian Prolapse. (Post-Graduate Clinic).
FRIDAY.—4.30 P.M., Dr. Milligan: Treatment of Meningitis of Otitic Origin. (Post-Graduate Clinic).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental (2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological (2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and (2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.) Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M.), Aural, (2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (13th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M)., and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1912, which was completed with the issue of June 26th, are given in this issue of THE LANCET.

VOLUMES AND CASES.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 3rd, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 27	30·13	W.	0·07	115	62	55	55	59	Cloudy
,, 28	29·89	W.	0·02	125	72	58	57	59	Raining
,, 29	29·81	S.W.	0·08	116	68	55	58	61	Raining
,, 30	29·85	S.W.	...	87	63	54	56	63	Overcast
July 1	29·84	W.	0·21	106	68	54	56	59	Overcast
,, 2	29·89	W.	0·27	90	63	54	54	57	Cloudy
,, 3	29·84	S.E.	...	90	61	54	54	56	Raining

The following journals, magazines, &c., have been received.—Zentral-organder Medizin, Parasitology, Journal of Genetics, Annales de l'Institut Pasteur, South African Medical Record, Child, Indian Medical Gazette, Hospital Assistant, Ophthalmoscope, Journal of the Royal Sanitary Institute, Parerga zum Elektrolytkreislauf, Revue de Psychiatrie, Archives of Internal Medicine, Journal of Nervous and Mental Disease, Therapeutic Gazette, Malaya Medical Journal, Quarterly Journal of Medicine, Public Health, Kennel, Medical Review, Annales de Gynécologie et d'Obstétrique, Edinburgh Medical Journal.

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